



## **PAIN MANAGEMENT JULY 2003**

Abu-Rafeh, B., G. A. Vilos, and M. Misra. "Frequency and laparoscopic management of ovarian remnant syndrome." *Journal of the American Association of Gynecologic Laparoscopists*. 10, no. 1(2003): 33-7 UI 12554991.

**STUDY OBJECTIVE:** To report the frequency and outcome of laparoscopy in women with chronic pelvic pain and/or pelvic mass who were found to have ovarian remnants. **DESIGN:** Cohort study. (Canadian Task Force classification II-2). **SETTING:** University-affiliated hospital. **PATIENTS:** One hundred nineteen women who had had hysterectomy and oophorectomy. **INTERVENTION:** Laparoscopic surgery. **MEASUREMENTS AND MAIN RESULTS:** Ovarian remnants were known in 5 and were found intraoperatively in 21 patients (18%). These 26 women had undergone at least one laparoscopy in an attempt to remove the remnants. After the ureter was identified, ovarian remnants were dissected and removed from the retroperitoneum laparoscopically with minimal risk of vessel or visceral injury. There were no intraoperative or postoperative complications and no conversions to laparotomy. In addition to ovarian remnants, adhesions were found in 19 women, endometriosis in 4, and no other pathology in 3. Twenty women had complete relief of symptoms. At follow-up of 1 to 8 years (mean 5 yrs), six underwent repeat laparoscopy for persistent pain; one had recurrent ovarian remnant. **CONCLUSIONS:** Ovarian remnant syndrome is not an infrequent complication after hysterectomy and oophorectomy in women with endometriosis.

Ackerman, W. E., 3rd. "Cauda equina syndrome after intradiscal electrothermal therapy." *Regional Anesthesia & Pain Medicine*. 27, no. 6(2002): 622 UI 12430118.

Ahmad, M., and C. R. Goucke. "Management strategies for the treatment of neuropathic pain in the elderly." *Drugs & Aging*. 19, no. 12(2002): 929-45 UI 12495368.

Pain caused by dysfunction or damage to the peripheral or central nervous system is typified by the symptoms described by patients with painful diabetic neuropathy, post-herpetic neuralgia and central poststroke pain. All these conditions are more common in the elderly. Neuropathic pain has long been recognised as one of the more difficult types of pain to treat; however, with the current emphasis on providing a multidisciplinary assessment and approach to management, more patients will be offered relief of their symptoms and an improved quality of life. Despite the use of combination drug therapy, adequate pain relief in the elderly is difficult to achieve without adverse effects. In an attempt to minimise these it is important to include non-drug treatment options in the management plan. Lifestyle changes and environmental modification, together with encouragement to adopt an appropriate exercise programme and an emphasis on maintaining mobility and independence should always be considered. Interventional therapy ranging from simple nerve blocks to intrathecal drug delivery can be of value. Drug treatment remains the mainstay of therapy. Tricyclic antidepressants such as amitriptyline, while having significant adverse effects in the elderly, have a number needed to treat (NNT) of 3.5 for 50% pain relief in diabetic neuropathy and 2.1 for 50% pain relief in postherpetic neuralgia. The newer antiepileptic drugs, such as gabapentin, appear to have a better adverse effect profile and provide similar efficacy with the NNT for treating painful diabetic neuropathy being 3.7 and 3.2 for treating pain in postherpetic neuralgia. As our understanding of the complexities of the pain processes increases,

we are becoming more able to appropriately combine treatments to achieve not only improved pain relief but also improved function. [References: 113]

Anonymous. "Opioid medicines for chronic low back pain." *Mayo Clinic Health Letter*. 21, no. 4(2003): 4 UI 12739433.

Anonymous. "Summaries for patients. The effectiveness of spinal manipulation relative to other therapies for low back pain.[original report in *Ann Intern Med*. 2003 Jun 3;138(11):871-81; PMID: 12779297]." *Annals of Internal Medicine*. 138, no. 11(2003): I33 UI 12779310.

Anonymous. "Washington nursing homes enlist unlikely clinical allies in pain management efforts." *Performance Improvement Advisor*. 1, no. 1(2003): 12-6 UI 12741039.

Anonymous. "Will the dietary supplement MSM help relieve my joint pain?" *Mayo Clinic Women's Healthsource*. 7, no. 5(2003): 8 UI 12714944.

Antao, B., et al. "Pelviureteric junction disruption as a complication of chemical lumbar sympathectomy." *Cardiovascular Surgery*. 11, no. 1(2003): 42-4 UI 12543571.

Chemical lumbar sympathectomy is a commonly performed procedure in vascular surgery and pain management. This case report discusses the management of a patient who suffered pelviureteric junction disruption following phenol injection for ischaemic leg pain despite radiological evidence of correct placement. The authors suspect this is an underreported complication, which could be relevant in obtaining informed consent.

Armstrong, M. P., S. McDonough, and G. D. Baxter. "Clinical guidelines versus clinical practice in the management of low back pain." *International Journal of Clinical Practice*. 57, no. 1(2003): 9-13 UI 12587934.

To date, there have been limited data on the implementation of evidenced-based clinical guidelines for low back pain (LBP). The aim of this study was to assess current management of LBP and evaluate to what extent clinical practice now reflects clinical guidelines. This survey involved the collection and analysis of data from the records of 200 patients who had been referred to a large teaching hospital with LBP. Analysis indicated a high use of X-rays, with little evidence of initial biopsychosocial assessment. The most popular treatments were advice, active exercises and McKenzie therapy. Manipulation was rarely used. Overall, a low use of electrotherapy was recorded. The results emphasise how little the clinical guidelines have influenced the decisions of clinicians, and highlight the need to address the barriers to adopting an evidence-based approach in this area.

Aslan, F. E., A. Badir, and D. Selimen. "How do intensive care nurses assess patients' pain?" *Nursing in Critical Care*. 8, no. 2(2003): 62-7 UI 12737190.

Identification and evaluation of pain in critical care patients may be difficult because of communication problems. Moreover, at present there are very few nursing studies that examine the attitudes of critical care nurses towards the assessment of patients' pain. This study was designed to determine the approach of critical care nurses towards assessing patients' pain levels, and to evaluate the problems in nursing diagnosis of those having difficulty in articulating their pain symptoms. We used a questionnaire to assess nurses attitudes to patients' pain. The study sample consisted of 91 critical care nurses who were recruited between January and February 2002. The results suggest that patient pain was considered undesirable by 44% of nurses. About 70-3% of the nurses reported resorting to administering analgesics to relieve their patients' pain. Some 57.1 % of nurses stated that they would have investigated whether the patients had really been experiencing pain, prior to administering the prescribed analgesics to patients. Some 85.7% of the sample indicated that the patients themselves would make the most accurate evaluation of their pain. The data suggested that 39.6% of nurses did not know how to evaluate pain symptoms in critical care patients suffering from complicated problems, and that 37.4% evaluated pain by monitoring the patients' behaviours. The study demonstrated that most of the critical care nurses did not know how to evaluate pain in patients having communication problems. The paper concludes by suggesting that there is a clear need to address nursing

education and training with regard to evaluation and management of patients' pain whilst in critical care environment.

Assendelft, W. J., et al. "Spinal manipulative therapy for low back pain. A meta-analysis of effectiveness relative to other therapies.[summary for patients in Ann Intern Med. 2003 Jun 3;138(11):133; PMID: 12779310]." *Annals of Internal Medicine*. 138, no. 11(2003): 871-81 UI 12779297.

**BACKGROUND:** Low back pain is a costly illness for which spinal manipulative therapy is commonly recommended. Previous systematic reviews and practice guidelines have reached discordant results on the effectiveness of this therapy for low back pain. **PURPOSE:** To resolve the discrepancies related to use of spinal manipulative therapy and to update previous estimates of effectiveness by comparing spinal manipulative therapy with other therapies and then incorporating data from recent high-quality randomized, controlled trials (RCTs) into the analysis. **DATA SOURCES:** MEDLINE, EMBASE, CINAHL, the Cochrane Controlled Trials Register, and previous systematic reviews. **STUDY SELECTION:** Randomized, controlled trials of patients with low back pain that evaluated spinal manipulative therapy with at least 1 day of follow-up and at least one clinically relevant outcome measure. **DATA EXTRACTION:** Two authors, who served as the reviewers for all stages of the meta-analysis, independently extracted data from unmasked articles. Comparison treatments were classified into the following seven categories: sham, conventional general practitioner care, analgesics, physical therapy, exercises, back school, or a collection of therapies judged to be ineffective or even harmful (traction, corset, bed rest, home care, topical gel, no treatment, diathermy, and minimal massage). **DATA SYNTHESIS:** Thirty-nine RCTs were identified. Meta-regression models were developed for acute or chronic pain and short-term and long-term pain and function. For patients with acute low back pain, spinal manipulative therapy was superior only to sham therapy (10-mm difference [95% CI, 2 to 17 mm] on a 100-mm visual analogue scale) or therapies judged to be ineffective or even harmful. Spinal manipulative therapy had no statistically or clinically significant advantage over general practitioner care, analgesics, physical therapy, exercises, or back school. Results for patients with chronic low back pain were similar. Radiation of pain, study quality, profession of manipulator, and use of manipulation alone or in combination with other therapies did not affect these results. **CONCLUSIONS:** There is no evidence that spinal manipulative therapy is superior to other standard treatments for patients with acute or chronic low back pain. [References: 117]

Backonja, M., and R. L. Glanzman. "Gabapentin dosing for neuropathic pain: evidence from randomized, placebo-controlled clinical trials." *Clinical Therapeutics*. 25, no. 1(2003): 81-104 UI 12637113.

**BACKGROUND:** Pain is one of the most common reasons for seeking medical attention, and neuropathic pain is among the most common types of pain. Despite its prevalence, neuropathic pain is often underrecognized and inadequately treated. Many cases are refractory to the medications traditionally used for pain, such as nonsteroidal anti-inflammatory drugs. Tricyclic antidepressants are considered first-line agents for neuropathic pain, but their use is limited by unwanted side effects and a risk of cardiovascular mortality. **OBJECTIVES:** The goals of this article were to review data on the efficacy and tolerability of gabapentin in the treatment of neuropathic pain in adults and to determine the optimal dosing schedule. **METHODS:** Randomized controlled studies of gabapentin for neuropathic pain were identified through a search of PubMed and MEDLINE from 1966 to the present using the search terms gabapentin, randomized, placebo, and pain. Abstracts of identified articles were screened for study size (>100 patients per treatment arm) and use of appropriate efficacy measures. A separate review based on information provided by the manufacturer of gabapentin and clinical trial Web sites was conducted to ascertain whether there had been any other relevant industry- or government-sponsored trials. The manufacturer provided additional unpublished study data. **RESULTS:** Data from 5 randomized, placebo-controlled trials were included in the review, 1 of which has not yet been published. Gabapentin was effective in the treatment of painful diabetic neuropathy, postherpetic neuralgia, and other neuropathic pain syndromes. It relieved symptoms of allodynia, burning pain, shooting pain, and hyperesthesia. Adverse effects were typically mild to moderate and usually subsided within approximately 10 days from the initiation of treatment. Based on available data, it appears that treatment should be started at a dose of 900 mg/d (300 mg/d on day 1, 600 mg/d on day 2, and 900 mg/d on day 3). Additional titration to 1800 mg/d is

recommended for greater efficacy. Doses up to 3600 mg/d may be needed in some patients. The effective dose should be individualized according to patient response and tolerability. CONCLUSION: At doses of 1800 to 3600 mg/d, gabapentin was effective and well tolerated in the treatment of adults with neuropathic pain. [References: 48]

Bally, K., et al. "Effects of patient-controlled music therapy during coronary angiography on procedural pain and anxiety distress syndrome." *Critical Care Nurse*. 23, no. 2(2003): 50-8 UI 12725195.

Banning, A. P., et al. "Same day discharge following elective percutaneous coronary intervention in patients with stable angina." *Heart (British Cardiac Society)*. 89, no. 6(2003): 665 UI 12748231.

Bari, V., et al. "Unenhanced helical CT scan for the investigation of acute ureteral colic." *Jcpsp, Journal of the College of Physicians & Surgeons - Pakistan*. 13, no. 3(2003): 180-2 UI 12689546.

Unenhanced helical CT is presently considered a superior imaging technique for investigating acute urinary colic compared to intravenous urography and ultrasound. It was introduced in Pakistan around the year 2000 and is in the process of being acknowledged as the first line investigation in emergency departments. We have discussed the advantages and the disadvantages of the technique, and have compared it with other imaging modalities. [References: 24]

Beaver, W. T. "Review of the analgesic efficacy of ibuprofen." *International Journal of Clinical Practice. Supplement.*, no. 135(2003): 13-7 UI 12723741.

There is a clear relationship between single doses of ibuprofen over the range 50-400 mg and the peak analgesic effect and the duration of analgesia. The smallest clinically useful dose of ibuprofen is 200 mg. Ibuprofen 400 mg has been shown to be as effective as aspirin 600 or 900 mg/day in models of moderate pain but superior to aspirin or paracetamol in more sensitive models such as dental pain. The duration of action of ibuprofen 400 mg is at least 6 hours compared with 4-6 hours for ibuprofen 200 mg or paracetamol. In patients undergoing oral surgery, ibuprofen 200 mg was broadly comparable with naproxen 220 mg and ibuprofen 400 mg comparable with ketoprofen 25 mg. The combination of ibuprofen and hydrocodone is more effective than either drug alone in patients undergoing abdominal and gynaecological surgery. The absorption of ibuprofen acid is influenced by formulation, and certain salts of ibuprofen (lysine, arginine, potassium) and solubilised formulations have an enhanced onset of activity. These differences are clinically important, offering a shorter time to onset of relief of tension headache compared with paracetamol. [References: 18]

Beilin, Y., S. Hossain, and C. A. Bodian. "The numeric rating scale and labor epidural analgesia." *Anesthesia & Analgesia*. 96, no. 6(2003): 1794-8, table of contents UI 12761014.

A verbal numeric 0-10 rating scale (NRS) is widely used to evaluate pain in research studies, but its usefulness to the clinician is not well established. In this study, we define desire for additional analgesic medication as a clinically relevant outcome in research studies about pain and compare it with the results of the NRS. A post hoc analysis of three studies that we previously conducted concerning labor epidural analgesia was performed. In all three studies, a verbal NRS score was obtained before and 15 min after labor epidural analgesia. At 15 min, the woman was also asked if she wanted more pain medication. We found that very few patients (2%) with a NRS score of 0-1 wanted more medication. When the NRS score was 2 or 3, 51% of the patients wanted more medication, and when the NRS score was >3, almost all patients (93%) wanted more medication. Grouping the final NRS scores into 3 categories (0 or 1, 2 or 3, and >3) is more useful to the clinician than using individual NRS scores. IMPLICATIONS: This study demonstrated that unless the score of the verbal numeric 0-10 rating scale (NRS) is 0 or 1, most women want more analgesic medication for labor epidural analgesia. Additionally, we found that grouping the NRS values into 3 categories for analysis (0 or 1, 2 or 3, and > 3) is more useful to the clinician than using the full spectrum of NRS scores.

Bennett, R. M., et al. "Tramadol and acetaminophen combination tablets in the treatment of fibromyalgia pain: a double-blind, randomized, placebo-controlled study." *American Journal of Medicine*. 114, no. 7(2003): 537-45 UI 12753877.

**PURPOSE:** To evaluate the efficacy and safety of a combination analgesic tablet (37.5 mg tramadol/325 mg acetaminophen) for the treatment of fibromyalgia pain. **METHODS:** This 91-day, multicenter, double-blind, randomized, placebo-controlled study compared tramadol/acetaminophen combination tablets with placebo. The primary outcome variable was cumulative time to discontinuation (Kaplan-Meier analysis). Secondary measures at the end of the study included pain, pain relief, total tender points, myalgia, health status, and Fibromyalgia Impact Questionnaire scores. **RESULTS:** Of the 315 subjects who were enrolled in the study, 313 (294 women [94%], mean [+/- SD] age, 50 +/- 10 years) completed at least one postrandomization efficacy assessment (tramadol/acetaminophen: n = 156; placebo: n = 157). Discontinuation of treatment for any reason was less common in those treated with tramadol/acetaminophen compared with placebo (48% vs. 62%, P = 0.004). Tramadol/acetaminophen-treated subjects also had significantly less pain at the end of the study (53 +/- 32 vs. 65 +/- 29 on a visual analog scale of 0 to 100, P <0.001), and better pain relief (1.7 +/- 1.4 vs. 0.8 +/- 1.3 on a scale of -1 to 4, P <0.001) and Fibromyalgia Impact Questionnaire scores (P = 0.008). Indexes of physical functioning, role-physical, body pain, health transition, and physical component summary all improved significantly in the tramadol/acetaminophen-treated subjects. Discontinuation due to adverse events occurred in 19% (n = 29) of tramadol/acetaminophen-treated subjects and 12% (n = 18) of placebo-treated subjects (P = 0.09). The mean dose of tramadol/acetaminophen was 4.0 +/- 1.8 tablets per day. **CONCLUSION:** A tramadol/acetaminophen combination tablet was effective for the treatment of fibromyalgia pain without any serious adverse effects.

Bentsen, B., A. Wenzel, and P. Svensson. "Comparison of the effect of video glasses and nitrous oxide analgesia on the perceived intensity of pain and unpleasantness evoked by dental scaling." *European Journal of Pain: Ejp*. 7, no. 1(2003): 49-53 UI 12527317.

The aim of this study was to evaluate whether distraction induced by video glasses had an effect on the perceived intensity of pain and unpleasantness during dental scaling compared with the effect of nitrous oxide (N<sub>2</sub>O) analgesia. The pain stimulus was dental scaling (removal of dental calculus) with an ultrasonic scaler. As a standardised, non-dental painful stimulus, Von Frey filaments were used. A total of 26 patients with superficial chronic periodontitis were enrolled in this randomised, controlled clinical study. The effect of video glasses was compared with N<sub>2</sub>O in one session and the effect of video glasses versus a control situation in another. The patients rated the intensity of pain and unpleasantness evoked by dental scaling and Von Frey filament stimulation on 100-mm visual analogue scales (VAS). For dental scaling, there was no effect of video glasses on the perceived pain (p=0.85) or unpleasantness (p=0.73) nor of N<sub>2</sub>O (p=0.69 and p=0.51, respectively) compared with the control situation. Similarly, no significant difference was found between VAS scores in the video glasses and N<sub>2</sub>O session (p=0.48, p=0.58). A significant effect of video glasses and N<sub>2</sub>O (p<0.008) was found on the perceived pain intensity produced by Von Frey filament stimulation compared with the control situation, but no significant difference was seen between these methods (p=0.07). Post-treatment interviews of the patients revealed that 81% of the patients in the video and 65% in the N<sub>2</sub>O session stated that the method had some beneficial effect on their overall experience of the treatment situation. In conclusion, administration of video glasses or N<sub>2</sub>O did not affect the perceived intensity of pain and unpleasantness evoked by dental scaling.

Bertakis, K. D., R. Azari, and E. J. Callahan. "Patient pain: its influence on primary care physician-patient interaction." *Family Medicine*. 35, no. 2(2003): 119-23 UI 12607809.

**BACKGROUND AND OBJECTIVES:** Heightened awareness of the importance of appropriate pain management in health care delivery has stimulated researchers to examine the impact of patient pain on medical encounters. In this study, we explored how patient pain might influence the physician-patient interaction during medical visits. **METHODS:** New adult patients (n = 509) were randomized to see primary care physicians in videotaped visits at a university medical center. Self-reported patient pain was measured before the visit using the Visual Analog Scale and the Medical Outcomes Study Short Form-36 (MOS SF-36) pain scale; patient sociodemographics were also measured. Physician practice style during the visit was analyzed

with the Davis Observation Code (DOC). RESULTS: Regression analyses revealed that patient pain during the medical visit was associated with the physician spending a greater portion of the visit on technical tasks and a smaller portion on preventive services and other activities designed to encourage the patients' active participation in their own health care. CONCLUSIONS: Patient pain may influence the physician-patient interaction and its outcomes. Primary care physicians should be aware that there may be less focus on patients' active involvement in their own care and less emphasis on providing disease prevention when treating patients who are experiencing pain.

Birch, S. "Trigger point--acupuncture point correlations revisited." *Journal of Alternative & Complementary Medicine*. 9, no. 1(2003): 91-103 UI 12676038.

In 1977, Melzack and colleagues examined the possible correspondence of acupuncture points and trigger points for the treatment of pain. They claimed a 71% correspondence between these two classes of points. Their findings have influenced many researchers and practitioners but have not been examined since 1977. The current study explores the claim of a 71% correspondence between these two classes of points through a more extensive examination of the acupuncture literature. OBJECTIVES: To investigate the claim of a 71% correspondence of acupuncture points and trigger points for the treatment of pain. METHODS: The study involved a review of acupuncture texts published since 1977, focusing on five textbooks for the in-depth analyses and a broader range of texts for the more general analyses. RESULTS: If trigger points correspond to any class of acupuncture points it would have to be to the a shi points rather than the "channel" or "extra" points with which the 1977 study attempted to find correlation. Approximately 35% of recommended acupuncture points in the treatment of pain are distant from the site of the pain, making assumptions about the infrequency of use of distant acupuncture points for pain suspect. Sixty-one percent (61%) of the acupuncture points that the 1977 study examined for the treatment of pain are not recommended at all for the treatment of pain, and 44% are not recommended in the treatment of any problem, while only 19% of the acupuncture points are frequently recommended for pain and 20% for all conditions. For the acupuncture points that corresponded in the 1977 study, the equivalent numbers are: 60% not recommended at all for pain, 47% not recommended for anything, 18% commonly recommended for pain, and 16% commonly recommended for anything. CONCLUSION: The claimed 71% correspondence of trigger points to acupuncture points is conceptually not possible. Furthermore, even putting this conceptual problem aside, no more than 40% of the acupuncture points that the 1977 study examined could correlate for the treatment of pain, and more likely, only approximately 18%-19% correlate rather than the 71% that was claimed. However, this study found a probable correspondence of trigger points to a different class of acupuncture points, the a shi points, which appears to be an important finding. Researchers and clinicians who have assumed the conclusions of the 1977 study to be correct will need to reexamine the impact of the current findings on any claims that are dependent on the conclusions of that study. [References: 58]

Biviano, A. B., et al. "Usefulness of an acute coronary syndrome pathway to improve adherence to secondary prevention guidelines." *American Journal of Cardiology*. 91, no. 10(2003): 1248-50 UI 12745113.

Blomkalns, A. L., et al. "Can electrocardiographic criteria predict adverse cardiac events and positive cardiac markers?" *Academic Emergency Medicine*. 10, no. 3(2003): 205-10 UI 12615583.

OBJECTIVES: To determine electrocardiogram (ECG) predictors of positive cardiac markers and short-term adverse cardiac events in an undifferentiated chest pain population presenting to emergency departments (EDs). The authors hypothesized that specific ECG findings, other than those previously identified in higher-risk populations, would be predictive of cardiac outcomes and positive cardiac markers. METHODS: This study used data from a prospectively collected, retrospectively analyzed Internet-based data registry of undifferentiated chest pain patients (i\*trACS). Logistic regression modeling was performed to determine the ECG findings that were predictive of 1) positive cardiac markers and 2) short-term adverse cardiac events. RESULTS: ST-segment elevation (STE), ST-segment depression (STD), pathological Q-waves (PQW), and T-wave inversion were associated with increased odds of percutaneous coronary intervention or catheterization, myocardial infarction, or coronary artery bypass grafting. The odds of creatine

kinase-MB (CK-MB) measuring positive were increased if STE, STD, or PQW were present [odds ratio (OR) 2.495, 2.582, and 1.295, respectively]. A right bundle branch block tended to decrease the odds of CK-MB measuring positive (OR 0.658). A similar pattern of results was observed for troponin I (OR 3.608 for STE, 3.72 for STD, 1.538 for PQW). Troponin T showed an increased odds of measuring positive if any of STE, STD, left bundle branch block, or T-wave inversion were evident (OR 2.313, 2.816, 1.80, and 1.449, respectively). CONCLUSIONS: Initial ECG criteria can be used to predict short-term cardiac outcomes and positive cardiac markers. These findings can be important aids in the risk-stratification and aggressive treatment regimens of chest pain patients presenting to EDs.

Blomqvist, K. "Older people in persistent pain: nursing and paramedical staff perceptions and pain management." *Journal of Advanced Nursing*. 41, no. 6(2003): 575-84 UI 12622866.

BACKGROUND: Persistent pain is a common problem for older people. Knowledge about how nursing and paramedical staff perceive these people and what they do to relieve the pain seems scarce. AIM: To explore nursing and paramedical staff perceptions of older people in persistent pain and their day-to-day management of pain. METHODS: Interviews in Swedish with 52 nursing auxiliaries, Registered Nurses, physiotherapists and occupational therapists were collected from February to May 2000. The analysis was based on their stories (n = 150) about older people in persistent pain who received help in their own homes or in special accommodation. A typology of staff perceptions of pain in older people was developed. Activities to manage pain were examined using content analysis. RESULTS: Respondents perceived the pain as real, exaggerated, trivial, care-related, endured, concealed, self-caused or inarticulate. Older people perceived as exaggerating the pain, those with care-related and self-caused pain evoked frustration in the staff, while those perceived as enduring their pain evoked satisfaction. Various strategies to manage pain were used: no activity, medication, mediating contacts, distracting activities, physical therapies, mobility, work in a gentle way, rest or relieving pressure on body part, and communication concerning pain. The activities differed between the types, as well as between staff with different professional backgrounds. CONCLUSION: Care and treatment provided by staff should be based on older people's needs rather than on staff attitudes and preferences. The typology revealed that staff perceived older people in pain as a heterogeneous group and that their perceptions affected the pain-relieving activities that were offered. It seems urgent to address how to handle pain in older people who never complain and those who complain a great deal, as well as how to handle pain in people with impaired communicative ability. Reflective discussions on feelings related to different individuals are needed.

Blumstein, H. A., and D. Moore. "Visual analog pain scores do not define desire for analgesia in patients with acute pain." *Academic Emergency Medicine*. 10, no. 3(2003): 211-4 UI 12615584.

Increased attention to improving the provision of analgesia has led to calls for increased use of pain measurement systems, including visual analog scales, which have not been validated for use in clinical care. OBJECTIVE: To evaluate the ability of the visual analog scale to differentiate between patients with acute, painful conditions requiring pain medication, and those not requiring analgesia. METHODS: This was a prospective, observational study of a convenience sample of patients with acute pain. Subjects were asked about their desire for medication. Visual analog scale pain scores were determined. RESULTS: One hundred four patients participated. Patients requesting pain medication had a mean visual analog scale score of 66. The mean score for those not requesting medication was 45. The difference between the means was 21 [95% confidence interval (95% CI) for difference between the means was 10.7]. The area under the receiver operating characteristic curve for the visual analog scale was 0.72 (95% CI = 0.61 to 0.82). CONCLUSIONS: The visual analog scale cannot adequately discriminate between those patients who do and do not desire analgesia.

Boden, W. E. ""Routine invasive" versus "selective invasive" approaches to non-ST-segment elevation acute coronary syndromes management in the post-stent/platelet inhibition era." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 113S-122S UI 12644349.

Is a "routine invasive" or "selective invasive" strategy the best approach for patients with non-ST-segment elevation acute coronary syndrome (ACS)? A "selective invasive" strategy

incorporates ischemia-guided use of aggressive medical therapy followed by angiography and revascularization for angina or stress-induced myocardial ischemia. The "routine invasive" strategy (cardiac catheterization followed by percutaneous coronary intervention within 24 to 48 h of symptom-onset) is frequently employed, but no randomized, controlled trials have demonstrated improved clinical outcomes. Recently, the second Fragmin and fast Revascularization during InStability in Coronary artery disease (FRISC-II) and the Treat angina with Aggrastat and determine Cost of Therapy with an Invasive or Conservative Strategy-Thrombolysis in Myocardial Infarction (TACTICS TIMI-18) trials found significant reductions in death, recurrent myocardial infarction, or hospitalization for biomarker-positive ACS. Also, the third Randomized Intervention Trial of unstable Angina (RITA-3) recently reported a halving of refractory angina and reduction in the use of antianginal medication with early intervention. Early trials failed to demonstrate the superiority of the "routine invasive" approach, presumably because of fewer revascularizations, unavailability of stents, and more recent use of glycoprotein IIb/IIIa inhibitors and low-molecular-weight heparins. The FRISC-II, TACTICS TIMI-18, and RITA-3 studies indicate that higher-risk patients benefit from early revascularization, but that aggressive antiplatelet, antithrombin, and anti-ischemic therapy are also important. While all three trials support an "early invasive" approach in intermediate- and high-risk patients, other trials support a more "conservative" approach in those without electrocardiographic changes or enzyme elevations. Optimal management should incorporate both strategies. [References: 41]

Boden, W. E., and C. J. Pepine. "Introduction to "Optimizing management of non-ST-segment elevation acute coronary syndromes". Harmonizing advances in mechanical and pharmacologic intervention." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 1S-6S UI 12644334.

Boes, C. J., M. S. Matharu, and P. J. Goadsby. "Benign cough headache." *Cephalalgia*. 22, no. 10(2002): 772-9 UI 12485201.

Benign cough headache is an uncommon primary headache disorder marked by short-lasting attacks of pain triggered by coughing. Magnetic resonance imaging of the brain is required to assure that the cough headache is truly benign. The aetiology of the pain is unclear, but is probably associated with the brief increased intracranial pressure that attends coughing. We have reviewed the clinical features, aetiology, differential diagnosis, management, and prognosis of benign cough headache. [References: 35]

Botwin, K. P., et al. "Complications of fluoroscopically guided interlaminar cervical epidural injections." *Archives of Physical Medicine & Rehabilitation*. 84, no. 5(2003): 627-33 UI 12736872.

**OBJECTIVES:** To assess the incidence of complications of fluoroscopically guided interlaminar cervical epidural injections. **DESIGN:** A retrospective cohort design study. **SETTING:** A multidisciplinary spine care center. **PARTICIPANTS:** One hundred fifty-seven consecutive patients with cervical radicular pain caused by cervical spondylosis or herniated nucleus pulposus confirmed by magnetic resonance imaging or computed tomography scanning. **INTERVENTIONS:** Fluoroscopically guided interlaminar cervical epidural injections were performed at the C7-T1 or C6-7 level using an 18-gauge, 9-mm Tuohy needle with 2mL of 1% lidocaine (Xylocaine) and 80-mg of triamcinolone acetonide (Kenalog). All injections were performed consecutively over a 12-month period by 1 of 5 physicians. **MAIN OUTCOME MEASURES:** An independent observer reviewed medical charts, which included a 24-hour postprocedure telephone call by an ambulatory surgery center nurse who asked a standardized questionnaire about complications after the injections. Also reviewed were physician notes regarding office follow-up consultations 3 weeks or less after the injections and epidurograms. **RESULTS:** The charts of 157 patients, who received 345 injections, were reviewed. Complications per injection included 23 increased neck pain (6.7%), 16 transient nonpositional headaches that resolved within 24 hours (4.6%), 6 episodes of insomnia the night of the injection (1.7%), 6 vasovagal reactions (1.7%), 5 facial flushing (1.5%), 1 fever the night of the procedure (0.3%), and 1 dural puncture (0.3%). The incidence of all complications per injection was 16.8%. **CONCLUSIONS:** Because all complications resolved without morbidity and no patient required hospitalization, fluoroscopically guided interlaminar cervical epidural injections may be a safe procedure for use in patients with cervical radicular pain.

Bowsher, D. "Factors influencing the features of postherpetic neuralgia and outcome when treated with tricyclics." *European Journal of Pain: Ejp.* 7, no. 1(2003): 1-7 UI 12527312.

This paper retrospectively reviews features of postherpetic neuralgia (PHN) in up to 279 personal patients in relation to treatment outcome when treated with tricyclic antidepressants (TCAs). Factors affecting characteristics of PHN: (i) Patients with allodynia (89%) and/or burning pain (56%) have a much higher visual analogue pain intensity score than those without; (ii) Acyclovir (ACV) given for acute shingles (HZ) does not reduce the incidence of subsequent PHN, but reduces the pain intensity in PHN patients with allodynia; (iii) ACV given for acute HZ reduces the incidence of burning pain in subsequent PHN, but not of allodynia; (iv) ACV given for acute HZ reduces the incidence of clinically detectable sensory deficit in subsequent PHN. Factors affecting outcome of TCA-treated PHN: (i) The point in time at which TCA treatment is commenced is by far the most critical factor: started between 3 and 12 months after acute HZ onset, more than two-thirds obtain pain relief (NNT=1.8); between 13 and 24 months, two-fifths (41%) (NNT=3.6); and more than two years, one-third (NNT=8.3). Background and paroxysmal pain disappear earlier and are more susceptible of relief than allodynia. (ii) Twice as many (86%) of PHN patients without allodynia obtain pain relief with TCA treatment than those with (42%); (iii) the use of ACV for acute HZ more than halves the time-to-relief of PHN patients by TCAs; (iv) PHN patients with burning pain are significantly less likely to obtain pain relief with TCAs than those without ( $p < 0.0001$ ).

Braun, A., et al. "Subjective intensity of pain during the treatment of periodontal lesions with the Vector-system." *Journal of Periodontal Research.* 38, no. 2(2003): 135-40 UI 12608907.

The aim of this study was to measure subjective intensities of pain during the treatment of periodontal lesions with the Vector-system when compared to pain occurring during the treatment with conventional methods. Twenty patients, each of whom had three teeth with comparable periodontal pocket depths, were treated using three different methods: (i) scaling and root planing with hand instruments, (ii) cleaning with a conventional ultrasonic instrument (Siroson S) and (iii) cleaning with the Vector-system. The subjective intensities of pain during the treatment were measured with an intermodal intensity comparison. A visual analog scale was used for the evaluation after the treatment. The results of the intermodal intensity comparison during treatment showed that the use of the Vector-system caused less pain than the cleaning with hand instruments or the conventional ultrasonic system ( $P < 0.05$ ). The intermodal intensity comparisons of cleaning with hand instruments and cleaning with the conventional ultrasonic system were not significantly different ( $P > 0.05$ ). These results could be confirmed by the visual analog scale. Using the Vector-system for cleaning periodontal lesions it is possible to reduce pain sensations compared to conventional methods. Using cleaning methods that cause less discomfort and pain, it might be possible to increase the patient's compliance during non-surgical periodontal therapy and recall.

Burton, A. W. "Acute, chronic, and cancer pain. Clinical management." *Methods in Molecular Medicine.* 84(2003): 267-83 UI 12703331.

Campbell, P. F. "Relieving endometriosis pain: why is it so tough?" *Obstetrics & Gynecology Clinics of North America.* 30, no. 1(2003): 209-20 UI 12699267.

Finding the solution for the pain of endometriosis is likely to be a time-consuming, often frustrating task. But it is a task that can begin in earnest only once the pain is identified and believed. If a girl or woman with endometriosis is ashamed to discuss her pain or her symptoms are dismissed or minimized by her physician, it is inevitable that her pain will continue untreated. The first step in treating the pain of endometriosis is to encourage patients to discuss their pain frankly. A pain map, diary, and descriptors may be helpful, but listening and believing the patient are essential. [References: 8]

Canavero, S., et al. "Transcranial magnetic cortical stimulation relieves central pain." *Stereotactic & Functional Neurosurgery.* 78, no. 3-4(2002): 192-6 UI 12652043.

Extradural cortical stimulation for neurogenic pain is a recent addition to the field of functional neurosurgery. About 50% of patients with central pain draw benefit in the long run. However, there is an urgent need for prognostic factors in order to cut the costs of the procedure. In this

paper we report a statistically significant correlation between the subhypnotic propofol test, transcranial magnetic cortical stimulation (TMS) and the actual short-term outcome of extradural cortical stimulation in 9 patients. The propofol test and TMS appear to predict short-term effects of extradural cortical stimulation. Copyright 2002 S. Karger AG, Basel

Cannon, C. "Improving acute coronary syndrome care: the ACC/AHA guidelines and critical pathways." *Journal of Invasive Cardiology*. 15, no. Suppl B(2003): 22B-27B; discussion 27B-29B UI 12724583.

Cannon, C. P. "Small molecule glycoprotein IIb/IIIa receptor inhibitors as upstream therapy in acute coronary syndromes: insights from the TACTICS TIMI-18 trial." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 43S-48S UI 12644340.

Glycoprotein (GP) IIb/IIIa inhibitors are beneficial in unstable angina/non-ST-segment elevation myocardial infarction (UA/NSTEMI). In large trials, the GP IIb/IIIa inhibitors tirofiban and eptifibatid were each found to reduce the risk of death or myocardial infarction (MI) in these patients at 30 days. These agents appear to be of greatest benefit in patients with a positive troponin at baseline, diabetes or ST-segment depression, recurrent angina, prior aspirin use, or a Thrombolysis In Myocardial Infarction (TIMI) risk score  $\geq 4$ . The Treat angina with Aggrastat and determine Cost of Therapy with an Invasive or Conservative Strategy (TACTICS) TIMI-18 trial was designed to compare the benefits of an early invasive versus a conservative strategy in high-risk UA/NSTEMI patients treated with GP IIb/IIIa inhibition. Patients were treated with tirofiban (for 48 h) plus aspirin and heparin and randomized to either invasive therapy (coronary angiography and revascularization when feasible) or conservative treatment (angiography only for patients with recurrent ischemia at rest or a positive stress test). A significant reduction in death or MI was demonstrated at 30 days ( $p = 0.02$ ) and at 6 months ( $p = 0.0498$ ). Death, MI, or rehospitalization for an acute coronary syndrome was also reduced with the invasive therapy at six months ( $p = 0.025$ ). These results provide evidence to physicians that early GP IIb/IIIa inhibition in combination with a prompt invasive approach should be used more widely in UA/NSTEMI patients, particularly those at high risk. [References: 44]

Cannon, C. P., and A. G. Turpie. "Unstable angina and non-ST-elevation myocardial infarction: initial antithrombotic therapy and early invasive strategy." *Circulation*. 107, no. 21(2003): 2640-5 UI 12782615.

Cartmell, R., and A. Coles. "Informed choice in cancer pain: empowering the patient." *British Journal of Community Nursing*. 5, no. 11(2000): 560, 562-4 UI 12066055.

Cancer and palliative care service users can often feel isolated and disempowered. (Tower, 1999). Physical changes, medical interventions and pain can mean that they no longer feel in control of their bodies or their futures. In recognition of this, many health professionals within cancer and palliative care have adopted the mantra of 'patient empowerment', but it is not always clear what it means for either the patients or the professionals. Empowerment is an interactive process that develops and increases power through cooperation, sharing and working together (Marquis and Huston, 2000), and it plays a central role in health professionals' personal and working lives. A person's ability to make decisions and choices demonstrates control of his or her own destiny. This article aims to direct health professionals' participation and involvement in restoring this ability to patients who have pain related to cancer. [References: 34]

Chabaud, S., et al. "Clinical trial simulation using therapeutic effect modeling: application to ivabradine efficacy in patients with angina pectoris." *Journal of Pharmacokinetics & Pharmacodynamics*. 29, no. 4(2002): 339-63 UI 12518708.

Ivabradine is a new bradycardic agent with a potential indication for stable angina pectoris. To investigate the best compromise between efficacy, safety, drug regimen, and number of patients to include in a phase III study, we conducted Monte Carlo simulations using a full therapeutic model. The binary clinical outcome, chest pain, was simulated using a physiologic model in which the coronary reserve was derived from the heart rate. Safety was defined as being heart rate dependent. Using real data to build a pharmacokinetic-pharmacodynamic model controlling drug effect (i.e., heart rate decrease), and resampling heart rate profiles from the database, 100 clinical trials ( $N = 200$ ) were simulated for five oral doses (2.5, 5, 10, 20, and 40 mg QD or BID) of

ivabradine. Only 25% of the simulated trials showed a significant effect of ivabradine with doses up to 10 mg QD, and 48 and 55% of the trials with doses of 10 mg BID and 20 mg QD, respectively, and more than 80% of the trials with a 40 mg daily dose. For safety, 4% of patients had at least one adverse event in the untreated group, and from 5 to 13% in the treated groups for the lowest to the highest dose, respectively. The number of subjects to include in a future trial to obtain a 15% decrease in chest pain under the assumption of a 68% base risk, is 239 subjects per group with 10 mg BID or 196 with 20 mg QD. These results illustrate how clinical trial simulations including a PK/PD model as well as a physiopathologic mechanistic model, describing the relationship between the intermediate and clinical endpoint, and the resampling of real patients from a large database can help in designing future phase III trials.

Cheng, T. O. "Munchausen syndrome presenting as cardiovascular disease (cardiopathia fantastica)." *American Journal of Cardiology*. 91, no. 10(2003): 1290 UI 12745128.

Cherkin, D. C., et al. "A review of the evidence for the effectiveness, safety, and cost of acupuncture, massage therapy, and spinal manipulation for back pain." *Annals of Internal Medicine*. 138, no. 11(2003): 898-906 UI 12779300.

**BACKGROUND:** Few treatments for back pain are supported by strong scientific evidence. Conventional treatments, although widely used, have had limited success. Dissatisfied patients have, therefore, turned to complementary and alternative medical therapies and providers for care for back pain. **PURPOSE:** To provide a rigorous and balanced summary of the best available evidence about the effectiveness, safety, and costs of the most popular complementary and alternative medical therapies used to treat back pain. **DATA SOURCES:** MEDLINE, EMBASE, and the Cochrane Controlled Trials Register. **STUDY SELECTION:** Systematic reviews of randomized, controlled trials (RCTs) that were published since 1995 and that evaluated acupuncture, massage therapy, or spinal manipulation for nonspecific back pain and RCTs published since the reviews were conducted. **DATA EXTRACTION:** Two authors independently extracted data from the reviews (including number of RCTs, type of back pain, quality assessment, and conclusions) and original articles (including type of pain, comparison treatments, sample size, outcomes, follow-up intervals, loss to follow-up, and authors' conclusions). **DATA SYNTHESIS:** Because the quality of the 20 RCTs that evaluated acupuncture was generally poor, the effectiveness of acupuncture for treating acute or chronic back pain is unclear. The three RCTs that evaluated massage reported that this therapy is effective for subacute and chronic back pain. A meta-regression analysis of the results of 26 RCTs evaluating spinal manipulation for acute and chronic back pain reported that spinal manipulation was superior to sham therapies and therapies judged to have no evidence of a benefit but was not superior to effective conventional treatments. **CONCLUSIONS:** Initial studies have found massage to be effective for persistent back pain. Spinal manipulation has small clinical benefits that are equivalent to those of other commonly used therapies. The effectiveness of acupuncture remains unclear. All of these treatments seem to be relatively safe. Preliminary evidence suggests that massage, but not acupuncture or spinal manipulation, may reduce the costs of care after an initial course of therapy. [References: 48]

Cleeland, C. S. "Pain assessment: the advantages of using pain scales in lysosomal storage diseases." *Acta Paediatrica. Supplement*. 91, no. 439(2002): 43-7 UI 12572842.

Routine and standardized assessment of pain should be conducted in patients with conditions, such as Fabry disease, that are associated with chronic pain. Such pain assessments, using validated and reliable pain scales or questionnaires, should cover the severity, location, temporal pattern and quality of the pain and how the pain impacts on quality of life and normal daily activity. The severity or intensity of pain can be assessed on verbal descriptor scales, visual analogue scales and numerical rating scales, which rate pain on a scale from 'no pain' through to 'excruciating pain' or pain as bad as you can imagine'. Three pain questionnaires that include such rating scales are short enough to be used repeatedly in a clinical or research setting: the Memorial Pain Assessment Card, the McGill Pain Questionnaire and the Brief Pain Inventory (BPI). The BPI also measures the effect of pain on daily activity and quality of life, defines the location of pain and assesses the effectiveness of previous pain relief medication. **CONCLUSIONS:** Reliable instruments are available to assess pain in chronic disease. In Fabry

disease, these should be used routinely to aid decisions concerning analgesic/pain control medication and to assess the effect of enzyme replacement therapy. [References: 22]

Cohen, M. "The role of low-molecular-weight heparin in the management of acute coronary syndromes." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 55S-61S UI 12644342.

A substantial number of clinical studies have consistently demonstrated that low-molecular-weight heparin (LMWH) compounds are effective and safe alternative anticoagulants to unfractionated heparins (UFHs). They have been found to improve clinical outcomes in acute coronary syndromes and to provide a more predictable therapeutic response, longer and more stable anticoagulation, and a lower incidence of UFH-induced thrombocytopenia. Of the several LMWH agents that have been studied in large clinical trials, including enoxaparin, dalteparin, and nadroparin, not all have shown better efficacy than UFH. Enoxaparin is the only LMWH compound to have demonstrated sustained clinical and economic benefits in comparison with UFH in the management of unstable angina/ non-ST-segment elevation myocardial infarction (NSTEMI). Also, LMWH appears to be a reliable and effective antithrombotic treatment as adjunctive therapy in patients undergoing percutaneous coronary intervention. Clinical trials with enoxaparin indicate that LMWH is effective and safe in this indication, with or without the addition of a glycoprotein IIb/IIIa inhibitor. The efficacy demonstrated by enoxaparin in improving clinical outcomes in unstable angina/NSTEMI patients has led to investigations of its role in the management of ST-segment elevation myocardial infarction. Initial results are very encouraging, and they indicate that enoxaparin may potentially substitute for UFH as adjunctive therapy in fibrin-specific thrombolytic regimens and improve coronary reperfusion rates in streptokinase-based regimens. [References: 47]

Connolly, D. A., S. P. Sayers, and M. P. McHugh. "Treatment and prevention of delayed onset muscle soreness." *Journal of Strength & Conditioning Research*. 17, no. 1(2003): 197-208 UI 12580677.

Eccentric exercise continues to receive attention as a productive means of exercise. Coupled with this has been the heightened study of the damage that occurs in early stages of exposure to eccentric exercise. This is commonly referred to as delayed onset muscle soreness (DOMS). To date, a sound and consistent treatment for DOMS has not been established. Although multiple practices exist for the treatment of DOMS, few have scientific support. Suggested treatments for DOMS are numerous and include pharmaceuticals, herbal remedies, stretching, massage, nutritional supplements, and many more. DOMS is particularly prevalent in resistance training; hence, this article may be of particular interest to the coach, trainer, or physical therapist to aid in selection of efficient treatments. First, we briefly review eccentric exercise and its characteristics and then proceed to a scientific and systematic overview and evaluation of treatments for DOMS. We have classified treatments into 3 sections, namely, pharmacological, conventional rehabilitation approaches, and a third section that collectively evaluates multiple additional practiced treatments. Literature that addresses most directly the question regarding the effectiveness of a particular treatment has been selected. The reader will note that selected treatments such as anti-inflammatory drugs and antioxidants appear to have a potential in the treatment of DOMS. Other conventional approaches, such as massage, ultrasound, and stretching appear less promising. [References: 91]

Cupero, T. M., S. Y. Kim, and A. B. Silva. "The effects of a preoperative steroid/anesthetic injection on post-tonsillectomy pain." *Ear, Nose, & Throat Journal*. 82, no. 4(2003): 305-8 UI 12735161.

We conducted a placebo-controlled, single-blind study to determine the efficacy of a local preoperative injection of a steroid/anesthetic combination in preventing post-tonsillectomy pain. We randomized 21 adults to receive either triamcinolone/bupivacaine on the left side and saline on the right or vice versa. Injections were administered in the area of the tonsillar pillars following intubation and prior to tonsillectomy. Based on the "generalized estimating equations" model of statistical analysis, we found no significant difference in the degree of postoperative pain between the active-treatment and control sides.

Davies, R. J. "Buffering the pain of local anaesthetics: A systematic review." *Emergency Medicine (Fremantle, W.A.)*. 15, no. 1(2003): 81-8 UI 12656792.

**OBJECTIVE:** To review the evidence that buffering of local anaesthetics with sodium bicarbonate reduces the pain of injection whilst not affecting efficacy. **METHODS:** Medline search from 1966 to December 2001. Articles in all languages were included. Bibliographies were examined for papers. **RESULTS:** The search identified 63 publications. All were retrieved. Of these, 22 were human prospective randomized controlled trials directly assessing the pain of infiltration. Three papers were based on observations. No case series, case reports, or retrospective studies were identified. One animal study was found. **CONCLUSION:** The evidence is that buffering with sodium bicarbonate significantly reduces the pain of local anaesthetic injection. The buffered solutions retain the efficacy of local anaesthetics and are stable in the mixtures used in the trials. Adrenaline-containing buffered solutions need refrigeration in closed containers for storage. Buffering will be particularly useful where pain of local anaesthetic injection may not be well tolerated such as in large areas of infiltration, sensitive areas such as the face and in children. It is recommended that sodium bicarbonate and tables of stable dilutions are readily available in the emergency department to facilitate this. [References: 49]

Davis, M. P., and M. Srivastava. "Demographics, assessment and management of pain in the elderly." *Drugs & Aging*. 20, no. 1(2003): 23-57 UI 12513114.

The prevalence of pain increases with each decade of life. Pain in the elderly is distinctly different from pain experienced by younger individuals. Cancer is a leading cause of pain; however, other conditions that cause pain such as facet joint arthritis (causing low back pain), polymyalgia rheumatica, Paget's disease, neuropathies, peripheral vascular disease and coronary disease most commonly occur in patients over the age of 50 years. Poorly controlled pain in the elderly leads to cognitive failure, depression and mood disturbance and reduces activities of daily living. Barriers to pain management include a sense of fatalism, denial, the desire to be 'the good patient', geographical barriers and financial limitations. Aging causes physiological changes that alter the pharmacokinetics and pharmacodynamics of analgesics, narrowing their therapeutic index and increasing the risk of toxicity and drug-drug interactions. CNS changes lead to an increased risk of delirium. Assessment among the verbal but cognitively impaired elderly is satisfactorily accomplished with the help of unidimensional and multidimensional pain scales. A comprehensive physical examination and pain history is essential, as well as a review of cognitive function and activities of daily living. The goal of pain management among the elderly is improvement in pain and optimisation of activities of daily living, not complete eradication of pain nor the lowest possible drug dosages. Most successful management strategies combine pharmacological and nonpharmacological (home remedies, massage, topical agents, heat and cold packs and informal cognitive strategies) therapies. A basic principle of the pharmacological approach in the elderly is to start analgesics at low dosages and titrate slowly. The WHO's three-step guideline to pain management should guide prescribing. Opioid choices necessitate an understanding of pharmacology to ensure safe administration in end-organ failure and avoidance of drug interactions. Adjuvant analgesics are used to reduce opioid adverse effects or improve poorly controlled pain. Adjuvant analgesics (NSAIDs, tricyclic antidepressants and antiepileptic drugs) are initiated prior to opioids for nociceptive and neuropathic pain. Preferred adjuvants for nociceptive pain are short-acting paracetamol (acetaminophen), NSAIDs, cyclo-oxygenase-2 inhibitors and corticosteroids (short-term). Preferred drugs for neuropathic pain include desipramine, nortriptyline, gabapentin and valproic acid. Drugs to avoid are pentazocine, pethidine (meperidine), dextropropoxyphene and opioids that are both an agonist and antagonist, ketorolac, indomethacin, piroxicam, mefenamic acid, amitriptyline and doxepin. The type of pain, and renal and hepatic function, alter the preferred adjuvant and opioid choices. Selection of the appropriate analgesics is also influenced by versatility, polypharmacy, severity and type of pain, drug availability, associated symptoms and cost. [References: 149]

Davis, M. P., et al. "Normal-release and controlled-release oxycodone: pharmacokinetics, pharmacodynamics, and controversy." *Supportive Care in Cancer*. 11, no. 2(2003): 84-92 UI 12560936.

Oxycodone has become one of the most popular opioids in the United States. It is superior to morphine in oral absorption and bioavailability, and similar in terms of protein binding and

lipophilicity. Gender more than age influences oxycodone elimination. Unlike morphine, oxycodone is metabolized by the cytochrome isoenzyme CYP2D6, which is severely impaired by liver dysfunction. Controlled-release (CR) oxycodone has become one of the most frequently utilized sustained-release opioids in the United States. Both its analgesic benefits and its side effects are similar to those of CR morphine. CR oxycodone is similar to morphine and other opioids in its abuse potential. Deaths attributable to oxycodone are usually associated with polysubstance abuse in which oxycodone is combined with psychostimulants, other opioids, benzodiazepines or alcohol. Oxycodone's kappa receptor binding has little role in abuse or addiction. The cost of CR oxycodone is prohibitive for most American hospices. [References: 78]

Dionne, R. "Relative efficacy of selective COX-2 inhibitors compared with over-the-counter ibuprofen." *International Journal of Clinical Practice. Supplement.*, no. 135(2003): 18-22 UI 12723742.

Non-steroidal anti-inflammatory drugs (NSAIDs) suppress the activity of both isoforms of cyclo-oxygenase (COX). Inhibition of COX-1, the constitutive isoform, is primarily responsible for the adverse gastrointestinal effects of the NSAIDs whereas inhibition of COX-2, the inducible isoform, accounts for their therapeutic effects. COX-2 inhibitors such as celecoxib and rofecoxib appear to be as effective as non-selective NSAIDs in the treatment of chronic inflammatory disease but their analgesic efficacy and their safety at the higher doses required for analgesia are less certain. There is consistent evidence that COX-1 plays a major role in the early pain response following injury and that analgesia is increased when both COX-1 and COX-2 are inhibited simultaneously. Early postoperative nociception may cause hyperalgesia at a later time by a process of central plasticity. In an experimental model of pain, ibuprofen promptly suppresses prostaglandin E2 concentrations whereas celecoxib has no discernible effect until 90-120 minutes postoperatively, when COX-2 activity is induced. Both drugs significantly reduce pain compared with placebo but celecoxib appears to have a slower onset of action. The analgesic effect of ibuprofen is well characterised for acute pain and short-term treatment is well tolerated. [References: 11]

Dodes, J. E. "Chronic facial pain." *Journal of the American Dental Association.* 133, no. 12(2002): 1606; author reply 1606, 1608 UI 12512655.

Dubois, E. F., et al. "Lack of relationships between cumulative methylprednisolone dose and bone mineral density in healthy men and postmenopausal women with chronic low back pain." *Clinical Rheumatology.* 22, no. 1(2003): 12-7 UI 12605311.

The medical use of glucocorticoids (GCs) is related to low bone mineral density (BMD). In this study we tested the hypothesis that the cumulative dose of GC is not related to BMD outcome. The study was cross-sectional in design and included healthy individuals with chronic low back pain resistant to conventional treatments. In two steroid-naive subjects cortisol and methylprednisolone (MP) concentrations were serially assessed after a single MP depot injection (160 mg epidurally). Furthermore, in 14 men and 14 postmenopausal women, previously treated with multiple epidural MP depots, endocrine parameters were analysed in relation to BMD outcomes. The minimal cumulative MP dose received by all 28 subjects was 3 g. In the two steroid-naive subjects, cortisol concentrations were completely suppressed for at least 6 days and partly recovered over the course of 30 days. During this period, MP concentrations remained detectable in plasma. In the 28 subjects, the cumulative MP dose received was 7.76 $\pm$ 4.23 g in the men and 8.50 $\pm$ 3.13 g in the women (mean $\pm$ 1SD). None of the men had osteoporosis, but osteopenia was prevalent in 78.5% according to WHO criteria extrapolated to men. Half of the women had osteoporosis and half of them had osteopenia. The body mass index (BMI) and endogenous oestradiol levels of the men were not related to BMD outcomes. Univariate linear relationships in women were found between BMI and spinal (r 0.62; P=0.02) and total hip BMD (r 0.61; P=0.03), but not femoral neck BMD. In women, relationships were also found between the total and, for protein binding-corrected oestradiol levels, and spinal BMD (r 0.70; P=0.01 and r 0.72; P=0.01, respectively) and total hip BMD (r 0.53; P=0.08 and r 0.56; P=0.05, respectively). No significance was observed between endogenous oestradiol levels and the BMD of the femoral neck. The administration of a single MP depot injection (160 mg) resembled a systemic low peak dose GC exposure. The administration of multiple MP depots in men and women with chronic low back pain revealed no relationship between cumulative GC dose and BMD. These findings

support the hypothesis of a non-existent relationship between cumulative GC dose and BMD outcomes in healthy men and women with a prior GC administration of at least 3 g.

Dudek, D., et al. "Outcomes of patients presenting with acute coronary syndromes and negative Troponin-T." *International Journal of Cardiology*. 88, no. 1(2003): 49-55 UI 12659984.

The aim of the study was to compare need for revascularization and clinical course between troponin-positive and troponin-negative patients with unstable angina pectoris defined as class IIIB according to Braunwald classification. Methods: The study group consisting of 104 patients was divided into troponin-positive (28 patients) and troponin-negative (76 patients) subgroups. Per study design all patients underwent coronary angiography. The subgroups were compared in regard to angiographic status and consequently the need for revascularization. Additionally, major adverse cardiac events (MACE) consisting of death, myocardial infarction, in-hospital revascularization during 30-days follow-up were assessed in subgroups. Results: In 58 (76%) patients with negative troponin test, the angiographically significant coronary artery stenosis was shown. Major adverse cardiac events were similar in both groups. Regardless of the initial TnT status, in both groups revascularizations (percutaneous or surgical) were performed with high frequency (89 versus 72%, P=NS). Conclusion: In patients with unstable angina in class IIIB according to Braunwald classification, the negative cardiac troponin test did not exclude severe coronary artery disease, which in the majority of patients required revascularization without any additional non-invasive testing for ischemia. Therefore, we postulate that patients with clinically evident unstable angina (IIIB) should be referred to early invasive assessment despite negative troponin T screening.

Dunn, N. "10-minute consultation: adverse drug event." *Bmj*. 326, no. 7397(2003): 1018 UI 12742925.

Eckel, T. S., and A. O. Ortiz. "Intradiscal electrothermal therapy in the treatment of discogenic low back pain." *Techniques in Vascular & Interventional Radiology*. 5, no. 4(2002): 217-22 UI 12599173.

Eikelboom, J., H. White, and S. Yusuf. "The evolving role of direct thrombin inhibitors in acute coronary syndromes." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 70S-78S UI 12644344.

The central role of thrombin in the initiation and propagation of intravascular thrombus provides a strong rationale for direct thrombin inhibitors in acute coronary syndromes (ACS). Direct thrombin inhibitors are theoretically likely to be more effective than indirect thrombin inhibitors, such as unfractionated heparin or low-molecular-weight heparin, because the heparins block only circulating thrombin, whereas direct thrombin inhibitors block both circulating and clot-bound thrombin. Several initial phase 3 trials did not demonstrate a convincing benefit of direct thrombin inhibitors over unfractionated heparin. However, the Direct Thrombin Inhibitor Trialists' Collaboration meta-analysis confirms the superiority of direct thrombin inhibitors, particularly hirudin and bivalirudin, over unfractionated heparin for the prevention of death or myocardial infarction (MI) during treatment in patients with ACS, primarily due to a reduction in MI (odds ratio, 0.80; 95% confidence interval, 0.70 to 0.91) with little impact on death. The absolute risk reduction in the composite of death or MI at the end of treatment (0.8%) was similar at 30 days (0.7%), indicating no loss of benefit after cessation of therapy. Supportive evidence for the superiority of direct thrombin inhibitors over heparin derives from the recently reported Hirulog and Early Reperfusion or Occlusion (HERO)-2 randomized trial with ST-segment elevation ACS, which demonstrated a similar benefit of bivalirudin over heparin for the prevention of death or MI at 30 days (absolute risk reduction 1.0%), again primarily due to a reduction in MI during treatment (odds ratio, 0.70; 95% confidence interval, 0.56 to 0.87), with little impact on death. Further evaluation of hirudin and bivalirudin in the antithrombotic management of patients with ACS is warranted. [References: 59]

Eledjam, J. J., et al. "Postoperative analgesia by femoral nerve block with ropivacaine 0.2% after major knee surgery: continuous versus patient-controlled techniques." *Regional Anesthesia & Pain Medicine*. 27, no. 6(2002): 604-11 UI 12430113.

**BACKGROUND AND OBJECTIVES:** This prospective study compared the efficacy and adverse effects after knee surgery of ropivacaine 0.2% administered as patient-controlled femoral analgesia (PCFA), as a continuous femoral infusion (Inf), or as both (PCFA+Inf). **METHODS:** Before general anesthesia, 140 adults scheduled to undergo major knee surgery received a sciatic/fascia iliaca nerve block with 0.75% ropivacaine (40 mL). After surgery, they were randomly assigned to receive, through the femoral catheter, an infusion of 0.2% ropivacaine administered as PCFA (boluses of 10 mL with a lockout time of 60 minutes), Inf (10 mL/h), or PCFA + Inf (5 mL/h plus boluses of 5 mL with a lockout time of 60 minutes). Pain was assessed at rest, on mobilization, and during physiotherapy using a visual analog scale (VAS). Additional use of intravenous (IV) analgesics was noted. **RESULTS:** Patients in all 3 groups experienced similar pain relief at rest, on mobilization, and after physiotherapy ( $P > .05$ ). Additional use of analgesics and overall patient satisfaction (excellent or good in 80% of cases) were also similar in all groups. However, total postoperative ropivacaine consumption was lower in the PCFA group, 150 mL/48 h (90.5 to 210); than in the Inf group, 480 mL/48 h (478 to 480); and the PCFA + Inf group, 310 mL/48 h (280 to 340) ( $P < .05$ ). Adverse events were similar in all 3 groups (hypotension, vomiting, insomnia). No paresthesia or motor block were observed. **CONCLUSION:** All 3 strategies provided effective pain relief. PCFA resulted in a lower consumption of ropivacaine (toxic and financial impact). PCFA + Inf does not improve postoperative analgesia.

Fairbank, J. "Clinical importance of the intervertebral disc, or back pain for biochemists." *Biochemical Society Transactions*. 30, no. Pt 6(2002): 829-31 UI 12440927.

The object of this paper is to give biochemists some insight into current thinking on back pain. I shall discuss the important, but limited, relationship of back pain to the principal pathological changes in the lumbar intervertebral discs. I shall point out some of the areas where scientists may be able to help clinicians understand and treat this common, but complex, condition. The literature on back pain is enormous, so I have made no attempt to select even a small part of it for this article. [References: 5]

Fanucci, E., et al. "Pyriformis muscle syndrome: CT/MR findings in the percutaneous therapy with botulinic toxin." *Radiologia Medica*. 105, no. 1-2(2003): 69-75 UI 12700548.

**PURPOSE:** The aim of our study was to evaluate the diagnostic capabilities of computed tomography (CT) and magnetic resonance (MR) imaging in piriformis syndrome (PS) and the long-term outcomes of CT-guided percutaneous treatment with botulinum. PS is a cause of sciatica and disability. The pain is usually increased by muscular contraction, palpation or prolonged sitting. **MATERIAL AND METHODS:** Thirty-four patients suffering from PS, suspected on the basis of clinical and electrophysiological criteria and after imaging examinations had excluded other causes of sciatic pain, had positive lidocaine tests and were treated by intramuscular injection of botulinum toxin type A (BTX-A) under CT guidance. MR sequences was performed in nine patients before treatment and after three months to evaluate the extent of muscle denervation. **RESULTS:** In 30 cases relief of symptoms was obtained after 5-7 days. In four patients insufficient pain relief warranted a second percutaneous treatment which proved clinically successful. No complications or side effects were recorded after BTX-A injection. The MR examination demonstrated a change in signal intensity of the muscle in seven patients due to denervation, whereas in the remaining two cases only atrophy was detected. Larger series are necessary to confirm these preliminary results. **CONCLUSIONS:** CT-guided BTX-A injection in the piriformis muscle is an emergent and feasible technique that appears to yield excellent local therapeutic effects without the risk of imprecise injection.

Farr, T., et al. "The effects of therapeutic massage on delayed onset muscle soreness and muscle function following downhill walking." *Journal of Science & Medicine in Sport*. 5, no. 4(2002): 297-306 UI 12585613.

This study Investigated the effects of a therapeutic massage on delayed onset muscle soreness and muscle function following downhill walking. Eight male subjects performed a 40-min downhill treadmill walk loaded with 10% of their body mass. A qualified masseur performed a 30-min therapeutic massage to one limb 2 hours post-walk. Muscle soreness, tenderness, isometric strength, isokinetic strength, and single leg vertical jump height were measured on two occasions before, and 1, 24, 72 and 120 hours post-walk for both limbs. Subjects showed significant ( $p < 0.004$ ) increases in soreness and tenderness for the non-massaged limb 24 hours post-walk with

a significant ( $p < 0.001$ ) difference between the two limbs. A significant reduction in isometric strength was recorded for both limbs compared to baseline 1 hour post-walk. Isokinetic strength at 60 degrees/sec and vertical jump height were significantly lower for the massaged limb at 1 and 24 hours post-walk. No significant differences were evident in the remaining testing variables. These results suggest that therapeutic massage may attenuate soreness and tenderness associated with delayed onset muscle soreness. However it may not be beneficial in the treatment of strength and functional declines.

Fujita, M., et al. "Sarpogrelate treatment reduces restenosis after coronary stenting." *American Heart Journal*. 145, no. 3(2003): E16 UI 12660685.

**BACKGROUND:** Sarpogrelate, a serotonin blocker, has been reported to inhibit the serotonin-induced proliferation of rat aortic smooth muscle cells. The aim of this study was to investigate whether sarpogrelate reduces restenosis after coronary stenting as a result of prevention of intimal hyperplasia. **METHODS:** We examined 79 patients with stable angina undergoing elective coronary stenting on de novo lesions of native coronary arteries in a prospective, randomized trial. All enrolled patients received aspirin and ticlopidine, and one third of the patients were assigned to receive oral sarpogrelate. **RESULTS:** Treatment with sarpogrelate in addition to aspirin and ticlopidine caused no major adverse cardiovascular events or hemorrhagic adverse effects during the 6-month follow-up period. The restenosis rate in the group of patients receiving sarpogrelate was 4.3%, which was significantly lower than the 28.6% rate found in the group of patients not receiving sarpogrelate. **CONCLUSIONS:** Sarpogrelate treatment reduces restenosis after coronary stenting, which suggests that serotonin released from activated platelets may play an important role in stent restenosis.

Gandhi, D., et al. "Answer to case of the month #88. Spontaneous intracranial hypotension." *Canadian Association of Radiologists Journal*. 54, no. 2(2003): 126-8 UI 12736925.

Gear, R. W., et al. "Sexual dimorphism in very low dose nalbuphine postoperative analgesia." *Neuroscience Letters*. 339, no. 1(2003): 1-4 UI 12618286.

In recent studies we demonstrated that the analgesic effect of the kappa-like opioids is significantly greater in women, that low dose nalbuphine (5 mg) produces profound anti-analgesia (i.e. enhances pain) in men, and that addition of a low dose of the non-selective opioid receptor antagonist naloxone (0.4 mg) to nalbuphine (5 mg) abolishes the sex difference and results in significantly enhanced analgesia in both sexes. To further delineate the dose-dependent analgesic and anti-analgesic effects of nalbuphine, the present study evaluated the effect of a lower dose of nalbuphine (2.5 mg), with and without naloxone, on dental postoperative pain. In women, nalbuphine alone induced modest, short duration analgesia, which was antagonized rather than enhanced by the addition of naloxone (0.4 mg). In men, this dose of nalbuphine alone did not produce analgesia or anti-analgesia, and naloxone (0.4 mg) did not alter the response to nalbuphine. Thus, the anti-analgesic effect of nalbuphine, present in both sexes at the 5 mg dose disappears at the lower dose of nalbuphine. In addition, the mild analgesia in women produced by this lower dose of nalbuphine is antagonized by naloxone.

Golembiewski, J. A. "Morphine and hydromorphone for postoperative analgesia: focus on safety." *Journal of Perianesthesia Nursing*. 18, no. 2(2003): 120-2 UI 12710006.

Gray, D. T., et al. "Conventional radiography, rapid MR imaging, and conventional MR imaging for low back pain: activity-based costs and reimbursement." *Radiology*. 227, no. 3(2003): 669-80 UI 12773674.

**PURPOSE:** To incorporate personnel and equipment use time in an activity-based cost comparison of conventional radiography and conventional and rapid magnetic resonance (MR) imaging for low back pain (LBP). **MATERIALS AND METHODS:** At each of four Seattle Lumbar Imaging Project (SLIP) sites, patients were randomized to undergo conventional radiography or rapid MR imaging of the lumbar spine. For sample SLIP patients and for similar non-SLIP patients undergoing conventional lumbar spine MR imaging as usual care in calendar year 2000, measured imaging room use and technologist and radiologist times were multiplied by costs per minute of standard equipment acquisition, personnel compensation, and related expenses. Resulting provider-perspective costs and Seattle area Medicare reimbursements for conventional

MR imaging and radiography for calendar year 2001 were used to estimate future "normative" reimbursement for rapid MR imaging. RESULTS: For 23 conventional radiography, 27 rapid MR imaging, and 38 conventional MR imaging examinations timed in calendar year 2000, all rapid MR imaging times exceeded those of conventional radiography but were less than those of conventional MR imaging. All 0.3- and 0.35-T MR imaging room and technologist times exceeded those for 1.5-T MR imaging. Average costs (in 2001 dollars) were \$44 for conventional radiography, 126 US dollars for 1.5-T rapid MR imaging, 128 US dollars for 0.3-0.35-T rapid MR imaging, 267 US dollars for 1.5-T conventional MR imaging, and 264 US dollars for 0.3-0.35-T conventional MR imaging. Conclusions regarding cost differences between conventional radiography and rapid MR imaging were robust to plausible parameter value changes evaluated in sensitivity analyses. Conventional radiography reimbursement was 44 US dollars. Applying the ratio of reimbursement (620 US dollars) to costs (264-267 US dollars) for conventional MR imaging to rapid MR imaging costs predicted reimbursement of 292-300 US dollars for the new modality. CONCLUSION: Times and costs for rapid MR imaging are roughly three times those for conventional radiography but about half those for conventional MR imaging for LBP. While current conventional radiography costs exceed reimbursement, current conventional MR and projected rapid MR imaging reimbursements exceed costs.

Gregoric, I., et al. "Off-pump coronary artery bypass grafting and transmyocardial laser revascularization via a left thoracotomy." *Texas Heart Institute Journal*. 30, no. 1(2003): 13-8 UI 12638665.

Off-pump coronary artery bypass grafting may be combined with adjunctive transmyocardial laser revascularization to optimize revascularization. This approach may be advantageous for high-risk patients, particularly those having undergone previous sternotomies. From October 2000 through May 2001, 17 patients (9 women and 8 men) underwent off-pump coronary artery bypass grafting and transmyocardial laser revascularization via a left thoracotomy. The patients had a mean age of 63 years and a mean ejection fraction of 0.33. All but 1 patient had undergone previous coronary surgery. In each patient, the heart was approached via a left thoracotomy through the 5th intercostal space, and 37 transmural channels, 1 mm in diameter, were each created with a single pulse of the carbon dioxide laser. Coronary artery bypass grafting was then performed with left internal thoracic artery or saphenous vein grafts. The follow-up period ranged from 2.1 to 9.3 months (mean, 6.2 months). The patients received 28 bypass grafts (mean, 1.6 grafts). Postoperatively, 2 patients required inotropic support. On day 8, 1 patient died of ventricular fibrillation. After a mean hospitalization of 7.7 days, the remaining patients were discharged, free of angina. At follow-up examination after a mean of 6 months (range, 2-9 months), 15 patients remained free of angina and one had mild angina. None had required further hospitalization. Performed via a left thoracotomy, off-pump coronary artery bypass grafting plus transmyocardial laser revascularization yielded an acceptable mortality rate, no major morbidity, and substantial angina relief in this carefully selected group of challenging, high-risk patients.

Guglielmo, W. J. "Pain control: did Dr. Lewis cross the line?" *Medical Economics*. 80, no. 5(2003): 106-8, 113, 117 UI 12688076.

Gupta, R., and T. Haydock. "Analgesia for acute myocardial infarction pain." *Annals of Emergency Medicine*. 41, no. 5(2003): 753-4 UI 12744246.

Gurses, E., et al. "The addition of droperidol or clonidine to epidural tramadol shortens onset time and increases duration of postoperative analgesia." *Canadian Journal of Anaesthesia*. 50, no. 2(2003): 147-52 UI 12560305.

PURPOSE: To compare tramadol alone and the combinations of either tramadol-clonidine or tramadol-droperidol with regard to analgesic and adverse effects. METHODS: After Ethic's Committee approval and patient informed consent were obtained, epidural catheters were inserted preoperatively at the L(3-4) interspace in 90 ASA physical status I-II adult patients undergoing lower abdominal surgery. Anesthesia was standardized. Patients were randomly assigned to one of three groups. Group I (T) patients received tramadol 75 mg, Group II (TD) patients received tramadol 75 mg plus droperidol 2.5 mg, and Group III (TC) patients received tramadol 75 mg plus clonidine 150 microg in a total volume of 10 mL administered as a single epidural injection in the postanesthesia care unit. The onset time of analgesia and duration of

analgesia, visual analogue pain scores, sedation, nausea scores, vital signs and side effects were recorded. RESULTS: Duration of analgesia was similar in both the TD and TC groups, and significantly longer than in the T group ( $P < 0.001$ ). Group TC patients displayed a significant increase in sedation scores and decrease in blood pressure and heart rate when compared with other groups ( $P < 0.001$ ). No adverse effects were observed in Group TD, while nausea scores were high in both the T and TC groups ( $P < 0.001$ ). Pain score, respiration rate, and SpO<sub>2</sub> values were similar in all study groups. CONCLUSION: We conclude that epidural tramadol in combination with droperidol or clonidine prolongs the duration of analgesia; however, droperidol appears to be a better alternative when adverse effects and antiemetic properties are taken into consideration.

Hartanto, V. H., et al. "Comparison of recovery from postoperative pain utilizing two sling techniques." *Canadian Journal of Urology*. 10, no. 1(2003): 1759-63 UI 12625855.

PURPOSE: Bone anchors are used for suture fixation in a wide variety of reconstructive surgeries. They have been in use for pelvic floor reconstruction since 1992. Bone anchors provide a stable point of suture fixation in order to avoid tying over the mobile rectus fascia. The purpose of this study was to compare two sling techniques that utilize bone anchors with respect to recovery from postoperative pain, complete continence, operative time, and length of hospital stay. MATERIALS AND METHODS: A total of 64 women (mean age = 57) were treated for stress urinary incontinence secondary to intrinsic sphincter deficiency or hypermobility between March 1998 to August 2000. Group I (SPWS) consisted of 30 patients who underwent insitu vaginal wall sling with suprapubic placement of bone anchors in the pubic tubercle utilizing the Vesica system. Group II (TVCS) consisted of 34 patients who underwent cadaveric fascia sling with transvaginal placement of bone anchors behind the symphysis pubis utilizing the Precision-TAC system. Phone interviews were conducted by a third party who was blinded to the details of the surgical technique, to assess pain at various postoperative times as well as current level of continence. The pain assessment was done using the Verbal Pain Assessment Scale (VAS). Complete continence was defined as dryness with no pad use. RESULTS: Significant differences were discovered in both days to pain free state and operative time. No other differences were detected in continence or length of hospital stay. Based on the VAS, a pain free state was achieved for the TVCS group in 1.33 days and for the SPWS group in 9.7 days with  $p=0.00043$ . Mean operative time for the SPWS group was 96.9 minutes for the sling alone and 106.7 minutes when combined with cystocele repair. Mean operative time for the TVCS group was 75.36 minutes for the sling alone and 98.11 minutes when combined with cystocele repair. No patient in either group developed osteomyelitis, osteitis pubis, removal of the bone anchors for any reason, nor sling erosion. Seventy percent and 83.3% patients were completely dry (mean follow-up 12.5 months, range 3-30 months) in the SPWS and TVCS group, respectively. CONCLUSION: A pain free state is achieved faster in patients undergoing transvaginal placement of bone anchors compared to bone anchors placed suprapubically. Bone anchors used in sling procedures are safe and achieve acceptable short term continence rates.

Hartmannsgruber, M. W., et al. "Intradermal sufentanil does not improve lidocaine-induced local anesthesia." *Canadian Journal of Anaesthesia*. 50, no. 2(2003): 153-8 UI 12560306.

PURPOSE: Peripheral opioid receptors may result in antinociceptive effects when occupied by opioids. This study examined intradermally injected sufentanil (S), a highly lipid soluble opioid, administered with and without lidocaine (L), in a thermal pain model. METHODS: Nine volunteers were instructed on the method of magnitude estimation of pain before undergoing baseline testing with seven seconds thermal stimuli between 44 and 52 degrees C, delivered by a contact thermal stimulator at five cutaneous forearm sites. Then, four sites randomly received injections of equal volumes (0.1 mL) of either normal saline (NS), lidocaine 0.5% (L), sufentanil 0.75 microg (S), lidocaine 0.5% plus sufentanil 0.75 microg (L+S), and one site was not injected and served as reference (REF). Testing was repeated at six, 30, 60, 90, 120, and 150 min following injection. The pain elicited by each stimulus was normalized to the subject's response to the 50 degrees C stimulus at the REF site. RESULTS: Baseline testing showed small ( $P = ns$ ) differences in pain scores. At six minutes, the lidocaine sites (L, L+S) had pain scores that were mean 83% (range 78-88%) lower than the other sites ( $P < 0.05$ ), but there was no difference between the L and L+S sites or between the S and NS or REF sites. At 30 and 60 min these pain scores were mean 38% (29-44%) and 20% (8-30%) less than at the REF, NS, and S sites ( $P = ns$ ). At 90 min and later

times, the pain scores had returned to baseline. CONCLUSIONS: These results suggest that intradermal sufentanil alone has no analgesic effect. Further, in combination with lidocaine, sufentanil does neither potentiate nor prolong the analgesic effect of lidocaine.

Harvey, E., et al. "Spinal manipulation for low-back pain: a treatment package agreed to by the UK chiropractic, osteopathy and physiotherapy professional associations." *Manual Therapy*. 8, no. 1(2003): 46-51 UI 12635637.

Trials of manipulative treatment have been compromised by, amongst other things, different definitions of the therapeutic procedures involved. This paper describes a spinal manipulation package agreed by the UK professional bodies that represent chiropractors, osteopaths and physiotherapists. It was devised for use in the UK Back pain Exercise And Manipulation (UK BEAM) trial--a national study of physical treatments in primary care funded by the Medical Research Council and the National Health Service Research and Development Programme. Although systematic reviews have reported some beneficial effects of spinal manipulation for low-back pain, due to the limited methodological quality of primary studies and difficulties in defining manipulation, important questions have remained unanswered. The UK BEAM trial was designed to answer some of those questions. Early in the design of the trial, it was acknowledged that the spinal manipulation treatment regimes provided by practitioners from the three professions shared more similarities than differences. Because the trial design specifically precluded comparison of the effect between the professions, it was necessary to devise a homogenous package representative of, and acceptable to, all three. The resulting package is 'pragmatic', in that it represents what happens to most people undergoing manipulation, and 'explanatory' in that it excludes discipline-specific variations and other ancillary treatments. [References: 29]

Hay, E. M., et al. "A pragmatic randomised controlled trial of local corticosteroid injection and physiotherapy for the treatment of new episodes of unilateral shoulder pain in primary care." *Annals of the Rheumatic Diseases*. 62, no. 5(2003): 394-9 UI 12695148.

OBJECTIVES: To compare the long term effectiveness of local steroid injections administered by general practitioners with practice based physiotherapy for treating patients presenting in primary care with new episodes of unilateral shoulder pain. METHODS: Adults consulting with shoulder pain were recruited by their general practitioner. Patients were randomly allocated to receive either corticosteroid injections or community based physiotherapy. Primary outcome was self reported disability from shoulder problems at six months. Secondary outcomes included participant's global assessment of change; pain; function; "main complaint"; range of shoulder movement; co-interventions. A study nurse unaware of the treatment allocation performed baseline and follow up assessments. Analysis was by intention to treat. RESULTS: Over 22 months 207 participants were randomised, 103 to physiotherapy and 104 to injection. Prognostic variables were similar between the two groups at baseline. Mean (SD) improvements in disability scores at six weeks were 2.56 (5.4) for physiotherapy and 3.03 (6.3) for injection (mean difference=-0.5, 95% confidence interval (95% CI): -2.1 to 1.2) and at six months were 5.97 (5.4) for physiotherapy and 4.55 (5.9) for injection (mean difference=1.4, 95% CI -0.2 to 3.0). A "successful outcome" (a minimum 50% drop in the disability score from baseline) at six months was achieved by 59/99 (60%) in the physiotherapy group and 51/97 (53%) in the injection group (percentage difference=7%, 95% CI -6.8% to 20.4%). Co-interventions were more common in the injection group during follow up. CONCLUSION: Community physiotherapy and local steroid injections were of similar effectiveness for treating new episodes of unilateral shoulder pain in primary care, but those receiving physiotherapy had fewer co-interventions.

Hellinger, J., S. Stern, and S. Hellinger. "Nonendoscopic Nd-YAG 1064 nm PLDN in the treatment of thoracic discogenic pain syndromes." *Journal of Clinical Laser Medicine & Surgery*. 21, no. 2(2003): 61-6 UI 12737645.

OBJECTIVE: The purpose of the present study was to discover new minimal invasive treatments of discogenic thoracic pain caused by protrusions or extrusions using the promising method of nonendoscopic Nd-YAG 1064 nm PLDN in the lumbar and cervical regions. Because early symptoms of chronic thoracic discogenic pain syndromes have not been characterized, interventional therapy is usually started late and involves a high complication rate. MATERIALS AND METHODS: A prospective controlled clinical study was undertaken by neurologists using Nd-YAG 1064 nm PLDN to treat 42 patients with thoracic disc protrusions and extrusions.

Patients with discogenic pain syndromes and MRI-confirmed disc pathology with spinal canal impairment were enrolled; 68 discs were treated. Maximal Nd-YAG laser 1064 nm dose was 1,000 watts per segment. Disc puncture was performed by dorsolateral approach. Monitored parameters were VAS, McNab score, subjective condition, neurological findings and peripheral EMG. A different, independent neurologist examined each case before and after surgery. RESULTS: At 6 weeks after treatment, 41 patients had a successful outcome; only one with a clinical suspicion of spondylodiscitis was dissatisfied. In all others, clinical parameters improved. EMG leaks had disappeared. Combined spastic paresis improved in 2/4 cases. Complications were one pneumothorax, one pleuritis and one suspected spondylodiscitis. CONCLUSION: Pain relief and decompression of spinal structures is effective and immediate by disc vaporization, shrinkage, nociceptor destruction and discogenic protein denaturation. Nonendoscopic percutaneous Nd-YAG 1064 nm PLDN is a highly effective method for the treatment of thoracic disc disorders with minimally invasive access and is recommended prior to any open surgery.

Henry, B. M., and J. G. Fraser. "Trephination for acute pain management." *Journal of Endodontics*. 29, no. 2(2003): 144-6 UI 12597717.

Surgical trephination can and does provide immediate relief of pain, surgical drainage of the infection and related fluids, and in most cases does not require supplementary administration of antibiotics and only minimal amounts of analgesics. This paper outlines the diagnosis and technique of surgical trephination.

Hirayama, F., et al. "The effect of postoperative ataralgesia by manual therapy after pulmonary resection." *Manual Therapy*. 8, no. 1(2003): 42-5 UI 12635636.

Muscle therapy, a form of manual therapy, was applied to control pain persisting for more than 1 week following posterolateral thoracotomy, and its efficacy for the alleviation of pain was investigated. Eight patients who underwent posterolateral thoracotomy and lung resection for cancer (n=7) or emphysema (n=1) received manual therapy to incised muscles and the muscles inserting into the ribs in the affected area for an average of 17 days postoperatively. Pressure-friction and stretching techniques were used. Treatment was continued until the intensity of the pressure-friction technique reached a level at which the patient complained of pain and a decrease in muscle tone was detected. Treatment was performed once a week for 3 weeks. Pain severity was measured using a visual analog scale (VAS) (0-10). Before the first treatment, the VAS was set at 10, and changes of the score were observed before and after the treatment as well as over time. After three sessions, all patients showed a decrease in pain from 10 to an average of 1.9 (range 1.3-2.6).

Holten, K. B., A. Wetherington, and L. Bankston. "Diagnosing the patient with abdominal pain and altered bowel habits: is it irritable bowel syndrome?" *American Family Physician*. 67, no. 10(2003): 2157-62 UI 12776965.

Diagnosing a patient who presents with abdominal pain and altered bowel habits can be challenging. Although serious organic illnesses can cause these symptoms, irritable bowel syndrome is commonly responsible. It can be difficult to properly evaluate these patients without overusing diagnostic tests and consultation. A practical approach for diagnosing irritable bowel syndrome is suggested, using the Rome II criteria and the presence of alarm symptoms such as weight loss, gastrointestinal bleeding, anemia, fever, or frequent nocturnal symptoms as starting points. If there are no alarm symptoms and the Rome II criteria are not met, it is acceptable to reevaluate the patient at a later date. If there are no alarm symptoms and the Rome II criteria are met, the patient should be categorized on the basis of age: patients 50 years or younger can be evaluated on the basis of predominant symptoms--constipation, diarrhea, or abdominal pain. Patients older than 50 years should be fully evaluated and considered for gastroenterology referral. If alarm symptoms are present, a full evaluation should be performed (and gastroenterology referral considered), regardless of the patient's age. [References: 26]

Hoving, J. L., et al. "Validity of the neck disability index, Northwick Park neck pain questionnaire, and problem elicitation technique for measuring disability associated with whiplash-associated disorders." *Pain*. 102, no. 3(2003): 273-81 UI 12670669.

The Neck Disability Index (NDI) and Northwick Park Neck Pain Questionnaire (NPQ) were developed to measure self-perceived disability from neck pain, including that which may arise

from whiplash injury. However, there is little data specifically concerning their validity for whiplash-associated disorders (WAD). The aim of this study was to assess the validity of the NDI and NPQ as measures of outcome in WAD by comparing them to a patient preference questionnaire, the problem elicitation technique (PET), which identifies problems that are of most importance to the individual patient. A cross-sectional study of 71 patients with varying severity and duration of WAD were recruited from a private physiotherapy practice. All patients completed a standardized self-administered questionnaire that included demographic and clinical details as well as self-perceived pain and severity of symptoms, NDI and NPQ. A trained interviewer administered the PET. Construct validity of the disability measures was examined by determining their correlation with each other and with pain and severity of symptoms by calculating Pearson's correlation coefficients. Content validity of the NDI and NPQ was assessed by comparing the items of both questionnaires to the problems identified by the PET. Participants' mean age was 40.1 years (SD=14.3) and 59 were women (83.1%). Most patients were in WAD category I (n=23, 32.1%), or II (n=42, 59.2%). Mean NDI, NPQ, and PET scores were 40.7 (SD=17.0), 38.7 (SD=15.8), and 160.2 (SD=92.0, range 6.0-509.5), respectively. Correlations between the NDI and PET, NPQ and PET, and NDI and NPQ were  $r=0.57$ ,  $0.56$  and  $0.88$ , respectively. The PET identified an average of 7.7 problems per patient (SD=4.2, range 1-17 problems). Problems most commonly identified were work for wages (52.1%), fatigued during the day (50.7%), participation in sports (47.9%), depression (43.7%), drive a car (43.7%), socialize with friends (33.8%), sleep through the night (31.0%), frustration (31.0%), and anger (28.2%). Only three of these problems are included in the NDI (work, driving, and sleeping) and only four are included in the NPQ (work, driving, sleeping, and social activities). While both the NDI and NPQ include some problems that are common in patients with WAD, frequently identified problems, such as emotional and social items are absent. In contrast to the PET, neither instrument captures the full spectrum of disabilities judged to be important by the patient.

Jacome, D. E. "Catamenial synkinetic retroauricular pain." *Cephalalgia*. 23, no. 3(2003): 214-7 UI 12662189.

A report of two female patients with persistent unilateral retroauricular pain and cranial synkinesis following Bell's palsy. Pain occurred during menses in the first patient and was exacerbated by menses in the second patient. Retroauricular pain often precedes or follows Bell's palsy. Pain normally disappears within 2 weeks from the onset of paralysis. Neurological examination, brain magnetic resonance imaging (MRI), computed tomography of the head and cranial electrophysiological testing were performed. The first patient had severe right retroauricular pain during her menses for several years following Bell's palsy. Her brain MRI showed non-specific T2 white matter hyperintensities. On her electromyogram she had facial synkinesis with tonic motor unit discharges on her right orbicularis oris and mentalis muscles during sustained eye closure. The second patient reported hearing a sound over her left ear when she blinked or protruded her jaw after Bell's palsy. She had ipsilateral retroauricular pain, exacerbated during menses. Her brain MRI was normal. Electromyogram showed facial synkinesis. Chronic retroauricular pain, occurring or exacerbated during menses, may be a rare complication of Bell's palsy. It can be associated with facial subclinical synkinetic dystonia and trigemino-facial synkinesis.

Jarit, G. J., et al. "The effects of home interferential therapy on post-operative pain, edema, and range of motion of the knee." *Clinical Journal of Sport Medicine*. 13, no. 1(2003): 16-20 UI 12544159.

**OBJECTIVE:** We studied the effects of home interferential current therapy (IFC) on postoperative pain, range of motion, and edema in subjects undergoing anterior cruciate ligament (ACL) reconstruction, meniscectomy, or knee chondroplasty. **DESIGN:** Randomized, double-blind, placebo-controlled prospective study. **SETTING:** A tertiary care outpatient orthopaedic clinic/ambulatory surgery center. **SUBJECTS OR PARTICIPANTS:** Eighty-seven subjects were separated into three groups based on their type of knee surgery and within each group randomized into a treatment or placebo group. **INTERVENTIONS:** All subjects received home IFC units. Subjects randomized to treatment group received a working IFC unit. Placebo subjects received units that were previously set to deliver no current. **MAIN OUTCOME MEASUREMENTS:** Post-operative edema at 24, 48, and 72 hours, and weeks 1-8; range of motion at 1, 3, 6, and 9 weeks; pain immediately after surgery, at 24, 48, and 72 hours, and

weeks 1-7; and amount of pain medication taken at days 1-10 were compared between treatment and placebo groups. RESULTS: All IFC subjects reported significantly less pain and had significantly greater range of motion at all post-operative time points. ACL and meniscectomy IFC subjects experienced significantly less edema at all time points, while chondroplasty subjects experienced significantly less edema until 4 weeks postoperatively. CONCLUSIONS: These findings indicate that home IFC may help reduce pain, pain medication taken, and swelling while increasing range of motion in patients undergoing knee surgery. This could result in quicker return to activities of daily living and athletic activities.

Joglekar, D. M., et al. "Use of lidocaine spray for pain relief and improved quality of life in terminally ill cancer patients." *Journal of the Association of Physicians of India*. 50(2002): 1458-9 UI 12583494.

Jones, K. D., and C. Sutton. "Patient satisfaction and changes in pain scores after ablative laparoscopic surgery for stage III-IV endometriosis and endometriotic cysts." *Fertility & Sterility*. 79, no. 5(2003): 1086-90 UI 12738500.

OBJECTIVE: To document the changes in pain scores 3-12 months following ablative laparoscopic surgery. Secondary outcome measures included patient satisfaction scores. DESIGN: A prospective, cohort study. SETTING: A tertiary referral center for the treatment of endometriosis. PATIENT(S): Seventy-three consecutive women with stage III-IV endometriosis and an endometrioma >2 cm. INTERVENTION(S): A laparoscopy was performed. The extraovarian endometriosis was ablated with a CO<sub>2</sub> laser, and the endometrioma capsule was fenestrated then ablated with the potassium-titanic-phosphate (KTP) laser or the Bicap bipolar diathermy. MAIN OUTCOME MEASURE(S): Pre- and postoperative visual analogue scores for pelvic pain were completed. Patient satisfaction was scored from 1 to 10, with a score of 10 being "most satisfied." RESULT(S): A total of 73 women with stage III-IV endometriosis and 96 cysts (23 cysts were bilateral). The mean revised American Fertility Society (AFS) score was 65.5 (range 22-128). At 12 months, the mean temporal decrease in the pain score for dyspareunia was 2.14 +/- 0.41; for dysmenorrhea, 1.52 +/- 0.38; and for chronic nonmenstrual pain, 2.37 +/- 0.43. Sixty-four (87.7%) patients were satisfied or very satisfied with the treatment. No surgical complications occurred. CONCLUSION(S): Laparoscopic ablative surgery for endometriomas in the presence of stage III-IV endometriosis is an effective treatment for relieving pelvic pain.

Jorgensen, B., E. Thaulow, and S. Coronary Angioplasty Amlodipine Restenosis. "Effects of amlodipine on ischemia after percutaneous transluminal coronary angioplasty: secondary results of the Coronary Angioplasty Amlodipine Restenosis (CAPARES) Study." *American Heart Journal*. 145, no. 6(2003): 1030-5 UI 12796759.

BACKGROUND: Despite successful coronary angioplasty (PTCA), patients may have ischemia after the procedure because of the overall coronary disease and luminal narrowing at the lesion sites. The aim of this study was to examine the effects of the calcium-channel blocker amlodipine on post-PTCA ischemia. METHODS: In a prospective, double-blind design, patients were randomized to receive 10 mg of amlodipine or placebo 2 weeks before angioplasty. Exercise tests and 48-hour ambulatory electrocardiography recordings were performed in 405 patients, 2 weeks before and 2 and 20 weeks (early and late) after PTCA. RESULTS: There were no differences in clinical and angiographic baseline characteristics between the treatment groups. Ischemia and angina were equally distributed before PTCA, and no difference in restenosis was found between the groups at follow-up. The incidence of angina was significantly lower in the amlodipine group compared with the placebo group both early and late after PTCA (P = .04 and .03). Exercise-induced ischemia was reduced by 40% (P = .009) early and 34% (P = .02) late after PTCA in the amlodipine group, and ischemia on ambulatory electrocardiography was reduced by 18% early and 28% late after PTCA compared with placebo (P = .06 and P = .009). CONCLUSION: Ischemia and angina occurred after successful PTCA and were significantly reduced by amlodipine.

Kakinoki, R., et al. "Treatment of painful peripheral neuromas by vein implantation." *International Orthopaedics*. 27, no. 1(2003): 60-4 UI 12582812.

Firstly, we designed a vein-implantation model using the rat femoral nerve and vein to study the morphometric changes in nerve endings inserted into venous lumina. By 4 weeks, nerve

fibers had extended from the nerve stump into the lumen of the vein and along the endothelium of the vein. After 8 weeks, the lengths and number of nerve fibres extending into the vein lumen began to decrease. At 12 weeks, the nerve ending had developed a hemispherical shape. In none of the experiments was a neuroma formed. Secondly, we treated ten neuromas in ten patients by the vein-implantation method. We obtained excellent results in seven patients.

Kiefer, W., and G. Dannhardt. "COX-2 inhibition and the control of pain." *Current Opinion in Investigational Drugs*. 3, no. 9(2002): 1348-58 UI 12498012.

The discovery of the two isoenzymes of cyclooxygenase COX-1 and COX-2 and their separate functions, localization and regulation, has initiated the search for new and more selective inhibitors of prostaglandin biosynthesis. Selective COX-2 inhibitors were developed in order to improve an anti-inflammatory and analgesic specificity and potency. The role of inducible COX-2 at the peripheral site of inflammation is well known. The discovery of COX-2 in the spinal cord suggests that it is responsible for spinal prostaglandin release in nociceptive processes following a peripheral inflammatory stimulus. In the future, selective COX-2 inhibitors such as celecoxib (GD Searle & Co), rofecoxib (Merck & Co Inc) and the recently developed etoricoxib (Merck & Co Inc) may play an important role in the treatment of a wider range of pain conditions in addition to their present use as anti-inflammatory and analgesic drugs. [References: 103]

Kiemeneij, F., et al. "Evaluation of a spasmolytic cocktail to prevent radial artery spasm during coronary procedures." *Catheterization & Cardiovascular Interventions*. 58, no. 3(2003): 281-4 UI 12594687.

Radial artery spasm is a frequent complication of the transradial approach for coronary angiography and angioplasty. Recently, we have been able to quantify spasm using the automatic pullback device. The objective of this study was to assess the efficacy of an intra-arterial vasodilating cocktail in reducing the incidence and severity of radial artery spasm. A hundred patients undergoing coronary procedures via the radial artery were divided into two groups of 50 each. Patients in group A received intra-arterial cocktail (5 mg of verapamil plus 200 micro g nitroglycerine in 10 ml of normal saline), while patients in group B did not receive any vasodilating drug. The pullback device was used for sheath removal at the end of the procedure. Seven (14%) patients in group A experienced pain (i.e., pain score of III-V) during automatic sheath removal, as compared to 17 (34%) in group B (P = 0.019). The mean pain score was significantly lower in group A than in group B (1.7 +/- 0.94 vs. 2.08 +/- 1.07; P = 0.03). The maximal pullback force (MPF) was also significantly lower for group A (0.53 +/- 0.52 kg; range, 0.10-3.03 kg) as compared to group B (0.76 +/- 0.45 kg; range, 0.24-1.99 kg; P = 0.013). Only 4 (8%) patients in group A had an MPF value greater than 1.0 kg, suggesting the presence of significant radial artery spasm, as opposed to 11 (22%) in group B (P = 0.029). Administration of an intra-arterial vasodilating cocktail prior to sheath insertion reduces the occurrence and severity of radial artery spasm. Copyright 2003 Wiley-Liss, Inc.

Koltyn, K. F., J. A. Landis, and E. A. Dannecker. "Influence of oral contraceptive use on pain perception and blood pressure." *Health Care for Women International*. 24, no. 3(2003): 221-9 UI 12746013.

The purpose of this study was to examine the influence of oral contraceptive (OC) use on pain perception and blood pressure. Thirty women (15 using OC and 15 normally menstruating) reported to the laboratory once a week for 4 consecutive weeks. Blood pressure and heart rate were assessed, and then pressure was applied to the left forefinger for 2 minutes with the Forgione-Barber pain stimulator while participants indicated when the stimulus became painful (PT) and rated the intensity of pain (PR). Data were analyzed with a 2 (group) x 4 (trials) ANOVA. Results indicated no significant differences (P > 0.05) for PT or PR between the two groups of women across the 4 weeks. There was a significant trials effect for systolic blood pressure (SBP; P < 0.05), with SBP being higher premenstrually and menstrually compared with postmenstrually in both groups of women. It is concluded that OC use did not significantly influence pain perception or blood pressure.

Kurusu, S., et al. "Usefulness of massive oral nicorandil in a patient with variant angina refractory to conventional treatment." *Internal Medicine*. 42, no. 2(2003): 163-7 UI 12636235.

A 67-year-old man, who was previously diagnosed with vasospastic angina and treated with standard therapy, was admitted to our hospital because of recurrent chest pain refractory to sublingual nitroglycerin. Admission electrocardiography revealed ST segment elevation in II, III and aV(F), and his symptoms were relieved by intravenous bolus administration of nicorandil. He was diagnosed to have active variant angina, and remained symptomatic even after treatment with calcium antagonists and nitrates at optimal doses. Intravenous bolus administration of nicorandil was consistently effective to relieve his symptoms. Anginal attack was finally prevented by massive oral nicorandil in addition to conventional treatment.

Lacima, G., et al. "Utility of ambulatory 24-hour esophageal pH and motility monitoring in noncardiac chest pain: report of 90 patients and review of the literature." *Digestive Diseases & Sciences*. 48, no. 5(2003): 952-61 UI 12772796.

It is unclear whether prolonged motility monitoring improves the diagnostic yield of standard esophageal tests in patients with noncardiac chest pain. Our aim was to assess the diagnostic value of ambulatory 24-hr pH and pressure monitoring in patients with noncardiac chest pain. Stationary manometry, edrophonium testing, and ambulatory pH and motility studies were performed in 90 consecutive patients with recurrent chest pain and normal coronary angiograms. Normality limits of ambulatory 24-hr motility were established in 30 healthy controls. The diagnoses of specific esophageal motility disorders (nutcracker esophagus and diffuse esophageal spasm) by stationary and ambulatory manometry were discordant in 48% of the patients. Edrophonium testing was positive in 9 patients, but correlated poorly with esophageal diagnoses. During ambulatory studies, 144 chest pain events occurred in 42 patients, and 72 (50%) were related to esophageal dysfunction. Strict temporal associations of events with esophageal dysfunction in relation to ambulatory 24-hr pH/motility scores permitted four patient categorizations: true positives (event-related and abnormal tests), N = 15; true negatives (event-unrelated and abnormal tests), N = 10; reduced esophageal pain threshold (event-related and normal tests), N = 4; and indeterminate origin (event-unrelated and normal tests), N = 13. Overall, 19 patients (21%) had a probable esophageal cause for chest pain (14 esophageal motility disorder, 4 acid reflux, 1 both). In conclusion, ambulatory manometry increases the diagnostic yield of standard esophageal testing in noncardiac chest pain, but the gain is small. Causes of chest pain other than high esophageal pressures and acid reflux must still be sought in most patients with chest pain of unknown origin after a negative cardiac work-up.

Lord, S. M. "Treatment strategies for chronic cases." *Pain Research & Management*. 8, no. 1(2003): 37-9 UI 12717477.

Manchanda, S. C. "Treatment of stable angina with low dose diltiazem in combination with the metabolic agent trimetazidine." *International Journal of Cardiology*. 88, no. 1(2003): 83-9 UI 12659989.

**BACKGROUND:** The risk/benefit of moderate to high doses of calcium antagonists in stable angina is uncertain. This study investigates the efficacy and acceptability of low dose diltiazem in combination with trimetazidine for the treatment of stable angina. **METHODS:** In a 28-day, randomized, double blind study, treatment with 90 mg diltiazem in combination with 60 mg trimetazidine or placebo per day was compared in 50 patients with stable angina. The primary outcomes were time to 1-mm ST segment depression and the Duke treadmill score. **RESULTS:** Of the 25 patients in each treatment group, the number (%) of patients responding to trimetazidine compared to placebo was, in time to 1-mm ST segment depression, 13 (52) versus 5 (20),  $P < 0.05$ ; in the Duke treadmill score, 18 (72) versus 8 (32),  $P < 0.01$ ; and in angina 17 (68) versus 3 (12),  $P < 0.01$ . Compared to placebo there was an improvement with trimetazidine in mean exercise time to 1-mm ST segment depression of 128 s (95% confidence interval 45.0-208.5;  $P < 0.01$ ); in the mean Duke treadmill score of 57.4% (95% confidence interval 9.9-100;  $P < 0.02$ ); and in mean anginal attacks of 5.1 per week (95% confidence interval, 3.1-7.3,  $P < 0.01$ ). **CONCLUSION:** The combination of low dose diltiazem with trimetazidine is effective with few side-effects in the symptomatic control of patients with stable angina.

Manfredi, P. L., and G. R. Gonzales. "Symptomatic uses of caffeine in patients with cancer." *Journal of Palliative Care*. 19, no. 1(2003): 63-5 UI 12710118.

Margic, K., and J. Pirc. "The treatment of complex regional pain syndrome (CRPS) involving upper extremity with continuous sensory analgesia." *European Journal of Pain: Ejp.* 7, no. 1(2003): 43-7 UI 12527316.

Continuous sensory analgesia of brachial plexus (CSA BP) was only occasionally reported to have been used in the treatment of CRPS. In the past four years, we have treated 21 patients with a working diagnosis of CRPS. The treatment was instituted one to six months after inciting injury. All patients were admitted to hospital. In the first two days, the therapy consisted of elevation, cryotherapy, and active exercises. Five patients responded well to this initial physiotherapy (5/21). In 16 cases, no evident improvement was observed and CSA BP was introduced. At follow-up (3-36 months), the results were: 13/16 (81%) had at least good results (excellent 2, good without any sequelae 5, good with sequelae of initial injury 6, and poor 3). The results were judged as follows: excellent (completely normal hand); good (only temporary pain up to 2 on a 0-10 numeric rating scale; no signs of dysfunction of sympathetic nervous system; ROM of wrist over 50% of normal hand; ROM of fingers excellent or good; and the strength of hand grasp and key pinch over 50% of normal hand measured with dynamometer) and if any of the former criteria was missing, the result was defined as poor.

Markman, M. "Supportive care." *Cancer Chemotherapy & Biological Response Modifiers.* 20(2002): 627-32 UI 12703227.

Martin, D. C., and D. T. O'Conner. "Surgical management of endometriosis-associated pain." *Obstetrics & Gynecology Clinics of North America.* 30, no. 1(2003): 151-62 UI 12699263.

General surgical guidelines are reasonable, but treatment frequently must be individualized. Laparoscopic coagulation can be used for many cases of superficial endometriosis. Resection seems to be associated with an increased resolution of endometriosis. Resection increases the difficulty of the procedure, the time of the operation, and the cost, however. When endometriosis is found coincidentally, it may need no treatment because many women have endometriosis as a self-limited disease. Distinguishing patients who need no treatment from patients who need intermediate or extensive treatment can be difficult. Care is needed to attempt to ensure that patients are neither overtreated nor undertreated. [References: 77]

McDonnell, A., J. Nicholl, and S. M. Read. "Acute Pain Teams in England: current provision and their role in postoperative pain management." *Journal of Clinical Nursing.* 12, no. 3(2003): 387-93 UI 12709113.

This survey describes the current provision of multidisciplinary Acute Pain Teams (APTs) in acute English hospitals performing adult in-patient surgery (excluding maternity). Associations between the presence of an APT and a number of organizational and clinical initiatives for the management of postoperative pain are also explored. Postal questionnaires were sent to the Clinical Director of Anaesthetics or head of the APT at every acute English hospital providing separate anaesthetic services. After written and telephone reminders, the response rate was 86% (n = 226). Eighty-four per cent (n = 190) of respondents had an APT in their hospital. The presence of an APT was associated (P<=0.05) with higher estimates of patient controlled analgesia and epidural use, regular in-service training for nurses and junior doctors, written guidelines/protocols for management of postoperative pain, routine use of postoperative pain measurement systems and audit/research in relation to postoperative pain issues. Acute Pain Teams, in which nurses play a major role, have a pivotal influence not only in relation to postoperative analgesia but also in wider service development. Since 1995, the number of hospitals offering in-patient surgery that are covered by an APT has risen. However, despite repeated endorsements from professional bodies, some acute hospitals still have no APT and recent evidence indicates that some APTs face financial problems and provide a 'token' service only. Recent policy recommendations may have little impact on the current situation.

McIntosh, A., and C. F. Shaw. "Barriers to patient information provision in primary care: patients' and general practitioners' experiences and expectations of information for low back pain." *Health Expectations.* 6, no. 1(2003): 19-29 UI 12603625.

BACKGROUND: As patient involvement in health-care increases, the role of information is crucial, especially in conditions where self-management is considered an integral part of care. However, the suitability and applicability of much patient information has not been appraised in

terms of how far it meets patients' information needs. AIMS: To ascertain patients' and clinicians' experiences and expectations of information in low back pain in order to suggest a suitable 'patient-centred' content for a patient information pack to be used in a primary care setting. METHODS: A qualitative study using semi-structured interviews with General Practitioners (GPs) (n = 15) and focus groups comprising patients with low back pain (n = 37). RESULTS: Barriers to information-giving for low back pain in primary care exist. Patients are dissatisfied with the information they receive from their GPs, especially regarding diagnosis and treatment. Patients tend to access information from a variety of other sources, which is often contradictory, conflicts with research evidence and leads to unreasonable expectations. GPs have varying views regarding the value of patient information and are equivocal about their roles as information providers. Although The Back Book is generally acceptable as a patient information leaflet for low back pain, attention to the tone of the text is required. CONCLUSIONS: Barriers exist to patient information provision, both generally and for low back pain, which need to be addressed in order to close the gap between strategy and implementation. Improving clinician communication skills and involving patients in developing information materials which meet their needs are crucial to this process.

McKay, R. G. "Ischemia-guided" versus "early invasive" strategies in the management of acute coronary syndrome/non-ST-segment elevation myocardial infarction: the interventionalist's perspective." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 96S-102S UI 12644347.

Conventional therapy for non-ST-segment elevation acute coronary syndrome (ACS) has traditionally employed an "ischemia-guided" strategy. In this approach, diagnostic cardiac catheterization and revascularization are only used in patients with objective evidence of myocardial ischemia as identified by recurrent symptoms or provocative stress testing. More recent studies, however, have demonstrated improved clinical outcomes with the use of an "early invasive" approach, employing routine coronary angiography early in the patient's hospital course, followed by percutaneous intervention or bypass surgery where appropriate. Improved clinical outcomes associated with an "early invasive" strategy may have evolved as a consequence of recent advances in both adjunctive pharmacotherapy and revascularization technique. In particular, use of glycoprotein IIb/IIIa inhibitors and/or low-molecular-weight heparin before catheterization have been shown to reduce clinical events in patients with ACS, and may reduce the risk of an invasive approach by plaque passivation before interventional therapy. Perhaps more importantly, the combined use of glycoprotein IIb/IIIa inhibitors and intracoronary stenting may reduce the potential early hazard of an invasive approach by specifically decreasing the incidence of death and nonfatal myocardial infarction associated with percutaneous intervention. In spite of the benefits of this synergistic combination of pharmacology and mechanical revascularization, risk stratification remains important in identifying high-risk individuals most likely to benefit from an "early invasive" approach. In addition, angiography with possible percutaneous coronary intervention of "culprit" lesions should always be used in combination with aggressive medical therapy to treat the widespread coronary atherosclerosis commonly seen in patients with ACS. [References: 27]

Mehta, S. R., and S. Yusuf. "Short- and long-term oral antiplatelet therapy in acute coronary syndromes and percutaneous coronary intervention." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 79S-88S UI 12644345.

Platelets play a central role in both the short- and long-term manifestations of atherothrombosis. In acute coronary syndrome (ACS), there is a steep rise in cardiovascular events early, followed by an incremental rise in cardiovascular events over the long term. This long-term event rate is related to persistent platelet activation and thrombin generation. There is therefore a need to optimize both short- and long-term oral antiplatelet and antithrombotic strategies. The benefits of aspirin therapy, when administered early and continued over the long term, were demonstrated in several early randomized trials. The Antithrombotic Trialists' Collaboration found a 46% reduction in vascular events with antiplatelet therapy (mostly aspirin). However, despite treatment with aspirin and proven therapies, recurrent events remain high. The adenosine diphosphate receptor antagonists, ticlopidine and clopidogrel, inhibit the early steps of platelet activation, degranulation, and release of prothrombotic and inflammatory mediators, while also preventing activation of the glycoprotein IIb/IIIa receptor. The Clopidogrel in Unstable angina

to prevent Recurrent Events (CURE) trial demonstrated the benefits of aspirin plus clopidogrel in reducing major cardiovascular events (cardiovascular death, myocardial infarction [MI], and stroke reduced by 20%,  $p = 0.00009$ ) in a broad range of patients with ACS when administered early and continued over the long term. The benefits emerge very rapidly after a 300 mg loading dose. For the large number of patients undergoing percutaneous coronary intervention in the CURE trial, there was a substantial risk reduction with clopidogrel pretreatment followed by long-term therapy ( $p < 0.002$ ). This benefit was present, regardless of whether intervention was performed early or late. The significant benefits of aspirin and clopidogrel persist for the combined efficacy-safety end point of cardiovascular death, MI, stroke, or life-threatening bleeding when clopidogrel is started early, combined with aspirin and other standard therapies, and continued for up to one year. [References: 55]

Mercadante, S., P. Villari, and P. Ferrera. "A model of acute symptom control unit: Pain Relief and Palliative Care Unit of La Maddalena Cancer Center." *Supportive Care in Cancer*. 11, no. 2(2003): 114-9 UI 12560940.

Palliative care in Italy was provided solely on a home care basis until a couple of years ago. In recent years different realities have been created according to personal experience, quite apart from new resources provided by the National Health System. The first Pain Relief and Palliative Care Unit in Sicily, the largest region in Italy, was established in March 1999. Most members of the regular staff of this Unit have a background in anesthesiology. Activity in the Unit has grown progressively, with 460 admissions in the last year. The characteristics of the first 1,000 patients admitted, the principal protocols for diagnostic and therapeutic procedures, such as those for hitherto intractable pain, nutrition and hydration, interventional procedures for symptom control, and emerging problems, a project called "Island with no pain," and activities in the fields of formation and research are described.

Miller, J. M., and S. Herbowy. "The McKenzie approach." *Rehab Management*. 15, no. 7(2002): 40-4 UI 12741214.

Mitka, M. "Experts debate widening use of opioid drugs for chronic nonmalignant pain." *Jama*. 289, no. 18(2003): 2347-8 UI 12746341.

Moliterno, D. J., and A. W. Chan. "Glycoprotein IIb/IIIa inhibition in early intent-to-stent treatment of acute coronary syndromes: EPISTENT, ADMIRAL, CADILLAC, and TARGET." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 49S-54S UI 12644341.

The acute coronary syndromes (ACS), with or without ST-segment elevation, share a common pathophysiology of activated platelets and thrombin generation stimulated by plaque erosion and rupture. Both mechanical and pharmacologic treatment strategies have evolved in an attempt to improve reperfusion at the myocardial tissue level. Intracoronary stents have lowered the incidence of abrupt vessel closure and restenosis, while potent platelet inhibition from intravenous glycoprotein IIb/IIIa antagonists has reduced the rate of periprocedural myocardial infarction and late mortality. Abciximab has well-established clinical benefits in percutaneous revascularization trials, and several recent landmark studies have evaluated the efficacy of concomitant abciximab during mechanical reperfusion therapy in the setting of ACS. These trials are reviewed, and an overall perspective is provided. [References: 56]

Monroe, V. S., et al. "Pharmacologic plaque passivation for the reduction of recurrent cardiac events in acute coronary syndromes." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 23S-30S UI 12644337.

Acute coronary syndrome (ACS) is often associated with the rupture of vulnerable atherosclerotic plaque, coronary thrombus formation, and abrupt limitation of blood flow, leading to adverse outcomes. Passivation of vulnerable plaque represents a therapeutic concept that has the potential to prevent or limit the magnitude of a new rupture in order to reduce the recurrence or severity of events. Plaque passivation can be defined as a process by which the structure or content of the atherosclerotic plaque is changed to reduce the risk of subsequent rupture and thrombosis. This may be achieved by using strategies that address different components of the plaque or the endothelium. The following factors can affect the susceptibility of plaque to rupture: macrophage infiltration; accumulation of inflammatory cells; paracrine secretion of enzymes that

may cause degradation of the fibrous cap of coronary plaque; shear stress; circadian rhythm variation in stress hormone release; and infectious agents. The use of pharmacologic agents to reduce plaque vulnerability by passivation has been explored. Clinical studies demonstrate that lipid-modifying agents (e.g., statins), antiplatelet agents (acetylsalicylic acid, thienopyridines, thianopyridines, glycoprotein IIb/IIIa inhibitors), and antithrombotic agents (unfractionated heparin and low-molecular-weight heparin) can reduce the occurrence of acute coronary events in ACS patients. In addition, angiographic studies suggest that statins may also promote regression of atherosclerosis. Angiotensin-converting enzyme inhibitors, niacin, and calcium antagonists may also contribute to plaque passivation. This article reviews atherosclerotic plaque development and vulnerability and discusses some clinical studies highlighting the role of plaque passivation in the management of ACS patients. [References: 59]

Morgan, D. E., et al. "Endoscopic stent therapy in advanced chronic pancreatitis: relationships between ductal changes, clinical response, and stent patency." *American Journal of Gastroenterology*. 98, no. 4(2003): 821-6 UI 12738462.

OBJECTIVE: Pancreatic duct stenting is now recognized as a treatment option for a number of pancreatic disorders. Although stent-induced ductal changes may result, there is little information regarding the frequency of these stent-induced changes in chronic pancreatitis and their relationship to stent occlusion and clinical response. Our objectives were to evaluate pancreatic ductal changes after endoscopic stenting in patients with preexisting radiographic evidence of chronic pancreatitis and to evaluate the relationships between ductal changes, pain response, and stent patency. METHODS: Twenty-five consecutive patients had 40 stent placement episodes. Main pancreatic duct diameter, pancreatitis grade, preexisting obstructive lesions, and stent-induced strictures were recorded. Pain response and stent patency were correlated with main pancreatic duct caliber change using chi(2) analysis. RESULTS: In 28 (70%) of 40 episodes, main pancreatic duct caliber increased or was unchanged after stenting; pain improved in 20 (71%) of 28. Pain improved in six (50%) of 12 patients with smaller ducts after stenting. Stent patency was documented upon retrieval in 34 episodes; most stents were occluded. Stent-induced strictures developed in 18% of 40 stent episodes. CONCLUSIONS: Main pancreatic duct caliber after endoscopic stenting was not a good indicator of pain response or stent patency; main pancreatic duct was often larger, and even with stent occlusion, patients' symptoms were frequently improved. Stent-induced strictures were infrequent, compared with values previously reported in the literature.

Nabeta, T., and K. Kawakita. "Relief of chronic neck and shoulder pain by manual acupuncture to tender points--a sham-controlled randomized trial." *Complementary Therapies in Medicine*. 10, no. 4(2002): 217-22 UI 12594972.

OBJECTIVES: To compare the effects of real acupuncture to tender points for neck and shoulder pain and stiffness (Japanese: katakori) with those of sham acupuncture. DESIGN: Randomized-controlled trial. METHODS: Thirty-four volunteers from an acupuncture school with complaints of chronic pain and stiffness, who had no arm symptoms and gave informed consent, were randomly allocated to acupuncture or sham groups. Acupuncture or sham acupuncture was applied to the tender points once a week for 3 weeks. In the acupuncture group the acupuncture needle was inserted to the muscle, then the sparrow pecking technique was applied five times. Sham acupuncture was done without insertion of the needle. Dull pain and stiffness were evaluated by visual analog scale (VAS) before, and every 2 days after the first needling for 1 month. Pressure pain threshold on the tender points was measured before and after each treatment. RESULTS: There was no statistical difference of VAS scores between acupuncture and sham groups 9 days after the last treatment. However, the acupuncture group showed significant reduction of VAS scores immediately after and/or 1 day after the real acupuncture treatments ( $P < 0.01$ ). The effect tended to be prolonged after repeated treatment. Pressure pain thresholds tended to increase after real acupuncture treatment but not after sham acupuncture. CONCLUSIONS: Acupuncture applied to tender points appears to have short-term effects on neck and shoulder pain and stiffness, but this study was unable to demonstrate any long-term superiority over sham acupuncture.

Narvani, A. A., E. Tsidis, and L. F. Wilson. "High-intensity zone, intradiscal electrothermal therapy, and magnetic resonance imaging." *Journal of Spinal Disorders & Techniques*. 16, no. 2(2003): 130-6 UI 12679666.

Magnetic resonance imaging changes to the symptomatic intervertebral disc following intradiscal electrothermal therapy were determined in this prospective study. Magnetic resonance images before the intradiscal electrothermal therapy procedure were compared with those taken at 6 months postprocedure in 10 patients. The presence and absence of high-intensity zone, the disc height and hydration, and Modic changes were determined from the images. In six of the 10 patients, a high-intensity zone was present on the magnetic resonance images of the disc before the intradiscal electrothermal therapy procedure. In all six patients, a high-intensity zone was still present after the procedure. In all 10 patients, there were no changes to other disc parameters assessed. Our findings question the clinical relevance of the high-intensity zone. They also suggest that the main mechanism of action of intradiscal electrothermal therapy may be other than that of sealing the annular tear.

Nissen, S. E. "Pathobiology, not angiography, should guide management in acute coronary syndrome/non-ST-segment elevation myocardial infarction: the non-interventionist's perspective." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 103S-112S UI 12644348.

Although an early invasive strategy (angiography and percutaneous coronary intervention) is the convention in acute coronary syndrome (ACS)/non-ST-segment elevation myocardial infarction (MI) in the U.S., a conservative pharmacologic approach is common in other countries. Trial evidence has demonstrated a modest benefit with an angiographically guided approach; but patients having negative troponin values or who were receiving aspirin showed little or no benefit, and those without ST-segment changes had slightly worse outcomes. Limitations of angiography are clinically important. Identification of hemodynamically significant stenoses may be confounded by coronary remodeling. Also, most plaques, particularly those responsible for acute events, are extraluminal. Assessment of the luminal diameter of a lesion, which requires comparison with a normal reference segment, may be impossible because of the diffuse nature of the disease. Percutaneous coronary intervention after plaque rupture may itself cause embolization and no-reflow phenomena, leading to severe complications. In addition, most ruptures may be clinically silent. Evidence of a systemic inflammatory component suggests that ACS patients are at risk for plaque rupture at multiple sites. The inability of angiography to depict the true extent of atherosclerosis is supported by necropsy and transplant donor studies. A metabolic approach to this systemic disease is the only strategy designed to influence the behavior of both the small number of angiographically visible lesions and the large number of occult plaques. Statins and other agents decrease the incidence of death and MI by stabilizing atherosclerotic plaques throughout the coronary bed, reducing inflammation, collagen degradation, tissue factor expression, and vasomotor tone. [References: 55]

Nissman, S. A., L. J. Kaplan, and B. D. Mann. "Critically reappraising the literature-driven practice of analgesia administration for acute abdominal pain in the emergency room prior to surgical evaluation." *American Journal of Surgery*. 185, no. 4(2003): 291-6 UI 12657376.

BACKGROUND: Classic teaching is that narcotic analgesia in the setting of an acute abdomen can alter physical examination findings and should therefore be withheld until after a surgeon's examination. METHODS: A telephone survey of emergency medicine physicians representing 60 US hospitals was conducted to assess the current practices and opinions regarding the early administration of narcotic analgesia in this setting. Relevant literature was also reviewed for methodological errors. RESULTS: Fifty-nine of 60 (98.3%) respondents reported that it is their practice to administer analgesia prior to surgical evaluation. Of these, only 9 of 59 (15.3%) reported always informing the surgeon prior to dosing the patient. The two most common motivations cited were that patient discomfort takes precedence (52 of 59; 88.1%) and that the literature supports the practice to be safe (51 of 59; 86.4%). CONCLUSIONS: It is common for emergency medicine physicians to medicate acute abdomen patients prior to surgical evaluation. Numerous significant study limitations and design flaws were found that question the validity of the four clinical trials supporting this practice. Because many physicians base their clinical decisions on these trials, a careful analysis of their shortcomings, as well as our own personal experiences and practice recommendations, is discussed.

Nitu, A. N., et al. "Emerging trends in the pharmacotherapy of chronic pain." *Expert Opinion on Investigational Drugs*. 12, no. 4(2003): 545-59 UI 12665411.

The pharmacotherapy for pain is dominated by conventional analgesics such as the opioids and the non-steroidal anti-inflammatory drugs. Recent advances in the understanding of the mechanisms of pain in general and chronic pain in particular, opened the field of analgesic therapy to newer pharmacological targets, which are aimed at improved efficacy and enhanced tolerability over conventional antipain treatments. Many novel targets are still in preclinical development, but some have made it into human trials and have shown promise. Newer anticonvulsants, new generation cyclooxygenase inhibitors, better tolerated glutamate modulators and balanced serotonin/noradrenaline re-uptake inhibitors are some targets that have shown promise in the clinic. These and other compounds that are in advanced phases of development for chronic pain are reviewed in this paper. It is hoped that the decade of pain control and research will lead us to an arsenal of effective and safe analgesics that will conquer the problem of chronic pain. [References: 101]

Oberbaum, M., et al. "Homeopathic treatment in emergency medicine: a case series." *Homeopathy: the Journal of the Faculty of Homeopathy*. 92, no. 1(2003): 44-7 UI 12587994.

Following a multiple-casualty construction disaster in Israel, members of The Center of Integrated Complementary Medicine joined in the emergency activity of the Shaare Zedek Medical Center. They administered homeopathic treatment to injured patients to supplement conventional orthopaedic treatment. This was to our knowledge the first time that complementary medicine had been used officially in conjunction with conventional medicine in an emergency situation. Our objective is to report and summarize the rationale, procedures and outcome of the complementary medicine intervention. Fifteen orthopaedic patients were included. They were treated by homeopathy in two phases starting 24 h post-trauma. All patients initially received *Arnica montana* 200CH in a single dose. Anxiety was treated with *Aconite* 200CH in nine patients, *Opium* 200CH in three, *Ignatia* 200CH in two and *Arsenicum album* 200CH in one according to type of anxiety. One day later, most patients reported a lessening of pain, 58% felt improvement, 89% had reduced anxiety, and overall, 61% felt that homeopathic treatment was helpful. In the second phase, 48 h post-trauma, specific complaints were addressed with classical homeopathy. At discharge patients rated the homeopathic treatment successful in 67% of the specific complaints. Several issues relating to the use of homeopathy in emergency medicine and its relation to conventional treatment are discussed. These include compliance, the conduct of rounds, shortage of time and staff, and the procurement of medicines.

O'Malley, K. J., et al. "Joint-specific multidimensional assessment of pain (J-MAP): factor structure, reliability, validity, and responsiveness in patients with knee osteoarthritis." *Journal of Rheumatology*. 30, no. 3(2003): 534-43 UI 12610814.

**OBJECTIVE:** To develop a reliable and valid instrument for measuring and monitoring joint-specific pain. **METHODS:** Developed using patient interviews, reviews of pain literature, and expert input from orthopedic surgeons, the final Joint-Specific Multidimensional Assessment of Pain (J-MAP) includes the 6-item Pain Sensory and the 4-item Pain Affect subscales. Scores on the J-MAP Pain Sensory and Affect subscales range from 0 to 100, with higher scores indicating more pain intensity and worse pain distastefulness, respectively. Following the assessment of the factor structure, patients' scores (n = 180) on the J-MAP subscales were converted to equal interval scores using Rasch analyses. A psychometric evaluation of the items and Rasch-calibrated scores was conducted and included an assessment of reliability, validity, and responsiveness for use with patients with radiographic knee osteoarthritis. **RESULTS:** Evidence from the factor analyses showed that the J-MAP Pain Sensory and Affect items made up 2 distinct factors. Internal consistency estimates for the J-MAP subscales exceeded 0.85. The J-MAP subscales showed evidence for validity and were shown to be internally and externally responsive, demonstrating greater responsiveness than the Arthritis Impact Measurement Scale or the Medical Outcome Study Short Form-36 pain subscales. Finally, evidence was found supporting the J-MAP subscales' ability to distinguish target joint pain from pain emanating from other musculoskeletal conditions. **CONCLUSION:** The J-MAP is a reliable, valid, and responsive measure for assessing joint-specific pain at a single time point, or changes over time for one or a group of patients with knee osteoarthritis. With this initial evidence of its psychometric rigor,

further testing of the measurement properties of the J-MAP in other joints and in other populations should be undertaken.

Ono, M., D. A. Brown, and R. K. Wolf. "Two cases of anomalous origin of LAD from right coronary artery requiring coronary artery bypass." *Cardiovascular Surgery*. 11, no. 1(2003): 90-2 UI 12543580.

We experienced two cases with anomalous origin of the left anterior descending artery (LAD) from the proximal right coronary artery requiring coronary artery bypass grafting. A 66-yr old female with a long history of angina and a positive stress test had the anomalous artery coursing anterior to the right ventricular outflow tract. A 42-yr old male with worsening angina after an anteroseptal myocardial infarction had the anomalous artery running between the great vessels. Both patients underwent left internal mammary artery-to-LAD bypass on the beating heart with complete resolution of ischemic symptoms. Isolated coronary artery anomaly is an uncommon disease (0.6-1.2%) in patients undergoing cardiac catheterization. An anomalous origin of the LAD from the proximal right coronary artery (RCA) or the right sinus of Valsalva (RSV) is very rare, found in 1.2-6.1% of all coronary anomalies. This coronary anomaly has been considered potentially serious but functionally unimportant. We report two cases of anomalous LAD from the proximal RCA resulting in anterior wall ischemia which was effectively treated by coronary artery bypass surgery. [References: 6]

Pacik, P. T., et al. "Pain control in augmentation mammoplasty: the use of indwelling catheters in 200 consecutive patients." *Plastic & Reconstructive Surgery*. 111, no. 6(2003): 2090-6; discussion 2097-8 UI 12711975.

Patel, A. D., and A. E. Iskandrian. "Role of single photon emission computed tomography imaging in the evaluation of therapy for angina pectoris." *American Heart Journal*. 145, no. 6(2003): 952-61 UI 12796749.

Paulson, J., J. Mellinger, and W. Baguley. "The use of intraperitoneal bupivacaine to decrease the length of stay in elective laparoscopic cholecystectomy patients." *American Surgeon*. 69, no. 4(2003): 275-8; discussion 278-9 UI 12716083.

This prospective, double-blind, randomized, and placebo-controlled study evaluates the effectiveness of intraperitoneal bupivacaine in decreasing the length of stay for elective laparoscopic cholecystectomy patients. Seventy-seven patients undergoing elective laparoscopic cholecystectomy before noon at a single institution and by a single group of surgeons were entered into the study. The pharmacy randomly assigned each patient to one of four study groups (control, predissection, postdissection, and both). Two syringes (A and B) containing 15 cm<sup>3</sup> of either normal saline or 0.5 per cent bupivacaine were sent with the patient to surgery. Syringe A was sprayed over the perihepatic area before any dissection, and B was sprayed over the perihepatic area just before port removal. Preoperative, intraoperative, and postoperative data were collected. Sixty-six patients completed the study: control, 14; predissection, 18; postdissection, 15; and both, 19. There was no statistical difference between the predissection, postdissection, and both groups regarding same-day discharge. Therefore, these groups were combined for comparison against the control group. The study found that patients receiving bupivacaine at any time during the surgery were more likely to go home the same day as their procedure (79% vs 43%, respectively: P < 0.02).

Peng, P. W., et al. "Comparison of anesthetic effect between 0.375% ropivacaine versus 0.5% lidocaine in forearm intravenous regional anesthesia." *Regional Anesthesia & Pain Medicine*. 27, no. 6(2002): 595-9 UI 12430111.

**BACKGROUND AND OBJECTIVES:** Ropivacaine was shown to provide superior postblock analgesia to lidocaine in intravenous regional anesthesia (IVRA) in voluntary studies. The objective of this study was to compare the anesthesia efficacy, postblock analgesia, and local anesthetic-related side effects between ropivacaine and lidocaine when forearm IVRA was used. **METHODS:** Fifty-one patients undergoing outpatient hand surgery were randomized to receive forearm IVRA with either ropivacaine 0.375% or lidocaine 0.5%. The volume was 0.4 mL/kg up to 25 mL. Sensation to pinching by forceps and motor function was assessed at 5-minute intervals up to 15 minutes. After tourniquet deflation, verbal pain rating score (VRPS) at 15-minute

intervals for the first 2 hours and time for first analgesic in the first 24 hours were evaluated. RESULTS: Eleven patients were excluded from the study with 20 patients remaining in each group. Onset time of anesthesia (6.5 +/- 2.9 minutes v 8.0 +/- 4.1 minutes for lidocaine and ropivacaine groups, respectively) and motor block were similar. In the postoperative period, VPRS was significantly lower in the ropivacaine group in the first 60 minutes (median, 0; P <.05) with significantly more patients in the ropivacaine group pain free (VPRS, 0) up to the first 90 minutes (P >.05). More patients in lidocaine group requested analgesic in the first 2 hours postblock, and only patients in the lidocaine group required supplemental IV morphine in the recovery room. Twenty-four hour analgesic consumption was the same. No local anesthetic-related side effects were observed. CONCLUSIONS: We conclude that 0.375% ropivacaine provides effective anesthesia and superior postoperative analgesia compared with 0.5% lidocaine when forearm IVRA is used.

Petzke, F., et al. "What do tender points measure? Influence of distress on 4 measures of tenderness." *Journal of Rheumatology*. 30, no. 3(2003): 567-74 UI 12610818.

OBJECTIVE: To examine the relationship between current pain, distress, and ascending and random measures of tenderness. METHODS: Manual tender point counts and dolorimeter measures of the pressure pain threshold were determined in a sample of 47 women representative of the general population with respect to tenderness. In addition, discrete pressure stimuli of varying intensities to the left thumb were applied in random fashion. Distress was measured with the Brief Symptom Inventory and the Beck Depression Inventory, and pain was evaluated with the Short Form McGill Pain Questionnaire. RESULTS: Only the random measure of tenderness was relatively independent of an individual's current psychological state. The respective correlation coefficients between measures of tenderness and psychological state were generally greatest for the manual tender point count and also significant for the dolorimeter measures. In contrast, all measures were highly correlated with ratings of spontaneous pain, again with the manual tender point count showing the strongest, and the random method the weakest, correlations. Linear regression analysis replicated the results of the correlational analysis. CONCLUSION: As a measure of tenderness, the number of positive tender points is clearly influenced by an individual's distress. Other more sophisticated measures of tenderness that randomly present stimuli in an unpredictable fashion appear to be relatively immune to these biasing effects, although our results obtained in a research setting have yet to be replicated in clinical practice.

Pieri, S., et al. "Percutaneous treatment of pelvic congestion syndrome." *Radiologia Medica*. 105, no. 1-2(2003): 76-82 UI 12700549.

INTRODUCTION: Pelvic congestion syndrome and chronic pelvic pain are enigmatic clinical conditions that may have considerable impact on the social and relational life of women. Patients usually complain of lower abdominal pain that has lasted for more than six months, is intermittent or continuous, and may become worse during menses or after a hard day's work. Sometimes the pain is accompanied by dyspareunia, urinary urgency or constipation. The traditional treatment of pelvic congestion syndrome has included both medical (analgesics, hormones) and surgical approaches (hysterectomy, ovarian vein ligation). Recently, percutaneous transcatheter embolization has also been proposed. We report our experience with the percutaneous management of pelvic congestion syndrome, using the transbrachial approach and sclerosis alone. MATERIAL AND METHODS: Between 1996 and 2001, 33 women underwent percutaneous treatment for pelvic congestion syndrome at our department. All the women had chronic pelvic pain which was continuous in 69%; 20 patients had dyspareunia, whereas 8 had urinary urgency; 72% took analgesics on a regular basis. All the patients underwent percutaneous treatment of pelvic congestion syndrome on an outpatient basis in a radiological suite, after receiving local anaesthesia. Sclerosis was performed with 3% sodium tetradecyl sulfate. Follow-up consisted of a questionnaire at one month and gynaecological and ultrasound examinations at 6/12 months. RESULTS: The pre-procedural ultrasound examination had revealed a mean diameter of 4.5 mm for the right ovarian vein and of 6.3 mm for the left. We found one pelvic congestion syndrome on the right, 11 on the left and 21 bilaterally. At the one-month follow-up, chronic pelvic pain was present in 13 patients (39%); the pain was continuous in three and intermittent in ten. At the follow-up after 6/12 months the symptoms were unchanged. Ultrasound revealed a reduction in periovarian varicosities, recording a mean diameter of 3.19

mm on the right and 4.5 mm on the left. Symptoms persisted in women with pelvic varicosities measuring over 5 mm at ultrasound. CONCLUSIONS: Pelvic congestion syndrome and chronic pelvic pain that do not respond to medical therapy can be resolved by percutaneous management. Less expensive than surgery, this therapeutic option is safe, effective, minimally invasive and capable of restoring patients to normal function. We propose the transbrachial approach as the first-choice treatment for bilateral pelvic congestion syndrome.

Piovesan, E. J., et al. "Recurrent extratrigeminal stabbing and burning sensation with allodynia in a migraine patient." *Cephalalgia*. 23, no. 3(2003): 231-4 UI 12662193.

Pistevou-Gombaki, K., et al. "Octreotide for palliative treatment of hepatic metastases from non-neuroendocrine primary tumours: evaluation of quality of life using the EORTC QLQ-C30 questionnaire." *Palliative Medicine*. 17, no. 3(2003): 257-62 UI 12725479.

BACKGROUND AND AIM: While octreotide has been used in palliative treatment of hepatocellular carcinoma and neuroendocrine tumours with good results, little is known about the possible role of this in palliative treatment of hepatic metastases. MATERIAL AND METHODS: We present our experience from the use of octreotide in palliative treatment of symptomatic liver metastases in 16 patients (11 males, five females, age ranged 43-69 years) with proven hepatic metastases from different primary tumours (six with non-small lung cancer, four with colon carcinoma, two with primary pancreatic head carcinoma, two with prostate cancer and two with adenocarcinoma of the stomach). All patients were administered 20 mg long-acting octreotide IM (octreotide LAR) once the first day, octreotide SC 0.5 mg three times daily on days 2-14 and then 20 mg long-acting octreotide IM every month. Quality of life was assessed by using the European Organization for Research and Treatment of Cancer (EORTC) Core Quality of Life Questionnaire (QLQ-C30). Tumour response was evaluated by using ultrasonography. RESULTS: One month after baseline, octreotide resulted in significant ( $P < 0.01$ , Wilcoxon test) improvement and stabilization of all major related EORTC QLQ-C30 parameters such as global quality of life, pain, fatigue, insomnia, appetite loss as well as physical, emotional, cognitive, social and role functioning. Except for mild hyperglycaemia in six out of 16 patients and mild gastrointestinal complications in one patient, no other severe side effect due to octreotide was reported. Two patients died two months after the initiation of the study due to generalized metastatic disease, while the remaining 14 patients were still alive seven months after the initiation of the study. The hepatic metastases were stabilized and no new lesions were detected by ultrasonography. CONCLUSIONS: Although further studies are warranted, we consider the use of octreotide a good alternative in palliative treatment of symptomatic liver metastases in patients with end-stage malignant disease.

Polkinghorn, B. S., and C. J. Colloca. "Chiropractic management of chronic chest pain using mechanical force, manually assisted short-lever adjusting procedures." *Journal of Manipulative & Physiological Therapeutics*. 26, no. 2(2003): 108-15 UI 12584509.

OBJECTIVE: To discuss a case involving a patient with chronic chest pain, dyspnea, and anxiety. Although resistant to previous treatment regimens, the condition responded favorably to chiropractic manipulation of the costosternal articulations. CLINICAL FEATURES: A 49-year-old man had chronic chest pain, dyspnea, and anxiety for over 4 months. The severity of the condition gradually progressed to the point of precluding the patient's active employment and most physical activity. Prior efforts to treat the condition had met with failure. INTERVENTION AND OUTCOME: The patient received mechanical force, manually assisted short-lever chiropractic adjustment of the thoracic spine and, in particular, the costosternal articulations. Adjustments were by means of an Activator Adjusting Instrument II. The patient responded favorably to the intervention, obtaining prompt relief from his symptoms. Sustained chiropractic care rendered over a 14-week period resulted in complete resolution of the patient's previously chronic condition, with recovery maintained at 9-month follow-up. CONCLUSIONS: Certain types of chest pain may have their etiology in a subluxation complex involving the costosternal articulation. Although the possibility of myocardial involvement must be considered with all patients whose symptoms include chest pain, a musculoskeletal involvement, including costosternal subluxation complex, may be the underlying cause of the symptoms in certain patients. When this is the case, chiropractic adjustment may provide an effective mode of

treatment. Further study in an academic research venue is merited to investigate the role that conservative chiropractic care can provide for patients with chest pain.

Popma, J., and D. L. Bhatt. "Case presentations and discussions." *Journal of Invasive Cardiology*. 15, no. Suppl B(2003): 34B-41B UI 12724585.

Prati, F., et al. "Stenting of culprit lesions in unstable angina leads to a marked reduction in plaque burden: a major role of plaque embolization? A serial intravascular ultrasound study." *Circulation*. 107, no. 18(2003): 2320-5 UI 12707236.

**BACKGROUND:** Intravascular ultrasound (IVUS) studies have shown that a mechanism of plaque compression/embolization contributes toward the poststenting increase in lumen area. The aim of this IVUS study was to compare the mechanisms of lumen enlargement after coronary stenting in 54 consecutive patients with unstable angina (UA) (group 1) and 56 with stable angina (group 2) to verify whether plaque embolization plays a major role in the former. **METHODS AND RESULTS:** Both groups underwent the IVUS assessment (speed, 0.5 mm/sec) before the intervention and after stent implantation. The lumen area, the external elastic membrane area, and the plaque+media area (PA) were measured at 0.5-mm intervals. PA reduction in the lesion site was significantly greater in group 1 (-2.50+/-1.97 versus -0.53+/-1.43 mm<sup>2</sup>, P<0.001). After stenting, 47% of the lumen area increase in group 1 was obtained by means of PA reduction, and 53% was attributable to external elastic membrane area increase; the corresponding figures in group 2 were 13% and 87% (P<0.05). Decrease in PA after stenting was the only significant predictor of the MB fraction of creatinine kinase (CK-MB) release in a multiple regression model (P=0.047). **CONCLUSIONS:** Serial volumetric IVUS assessment revealed in UA lesions a marked poststenting reduction in plaque volume, which is significantly greater than in stable angina and is associated with postprocedural CK-MB release. The decrease in PA during the procedure predicts CK-MB release in a multiple regression model. These findings suggest that stent deployment is often associated with plaque embolization in patients with UA.

Putzke, J. D., et al. "Test-retest reliability of the Donovan spinal cord injury pain classification scheme." *Spinal Cord*. 41, no. 4(2003): 239-41 UI 12669088.

**STUDY DESIGN:** Videotape rating by independent viewers. **OBJECTIVE:** To determine the test-retest reliability of the Donovan spinal cord injury (SCI) pain classification scheme. **SETTING:** Rehabilitation Centre, Alabama, USA. **METHODS:** A total of 28 individuals with SCI reported 60 pain sites. A structured interview and physical exam were used to illicit information to classify each pain site according to the Donovan criteria. All structured interviews and exams were videotaped. Three independent raters viewed the videotapes on two occasions, separated by a 3-month interval, and classified each pain site using the Donovan pain classification scheme. **RESULTS:** Considering all three raters together, 78% of the pain sites were consistently classified from one period to the next. Within each rater, consistent classification ranged from 67 to 83%. However, inter-rater agreement for the classification of each pain site into the various types of pain was low for both periods (about 50-60%). **CONCLUSIONS:** Pain classification within each rater generally showed adequate test-retest reliability when using the Donovan SCI pain classification scheme. However, reliability estimates of agreement across raters highlight the ongoing need to exam and improve the psychometric characteristics of the various pain classification schemes.

Rackley, C. E. "Role of statin drugs in acute coronary syndromes." *Current Atherosclerosis Reports*. 4, no. 3(2002): 161-3 UI 11931712.

Ragab, A. A. "Validity of self-assessment outcome questionnaires: patient-physician discrepancy in outcome interpretation." *Biomedical Sciences Instrumentation*. 39(2003): 579-84 UI 12724955.

Patient outcome following total hip arthroplasty (THA) was evaluated using a previously described patient assessment outcome index questionnaires. The questionnaire was distributed to 263 patients who underwent cementless THA. One hundred and three patients responded to the self-administered questionnaire and had updated clinical evaluation. We obtained a modified Harris Hip Score (HHS) based on patient assessments of their own pain and function and compared it with the clinical HHS obtained at the patients' last office visit. The mean follow up

period was 4 years. Statistical analysis was performed between the two scores. The correlation between the scores from the self-administered questionnaire and the patients' last office visit revealed a fairly low correlation coefficient ( $r = 0.467$ ,  $p < 0.001$ ). Relative lack of correlation between the HHS's obtained from these two sources was especially noted for patients with a pain score of 30 points or less. These 26 patients were subsequently interviewed in detail about their pain to further explain these differences. The etiology of the perceived "hip pain" was found to be secondary to trochanteric bursitis in 13 patients, lumbar spondylosis in 7 patients, arthrosis of the contralateral hip in 5 patients, and from other causes in 8 patients. Pain that was hip related (anterior thigh or groin) was present in only 5 out of the 26 patients with a pain score of 30 or less. Another source of discrepancy between the total scores of the HHS was found to be on behalf of the physician in evaluating the presence of a limp. We also found that patients' expectations had changed from their preoperative expectations. Although outcome measures developed and administered by clinicians are subject to bias from several sources, results of this study suggest that self administered patient outcome measures also have their limitations. The validity of self-administered patient outcome questionnaires can be severely impacted by the patients' understanding of the questions asked, as even the most seemingly simple questions are subject to misinterpretation.

Raheem, D. "Pelvic joint dysfunction--a midwife's story." *Practising Midwife*. 6, no. 4(2003): 17-9  
UI 12715500.

Recart, A., et al. "The efficacy of celecoxib premedication on postoperative pain and recovery times after ambulatory surgery: a dose-ranging study." *Anesthesia & Analgesia*. 96, no. 6(2003): 1631-5, table of contents  
UI 12760986.

Recently, the Food and Drug Administration increased the celecoxib dosage recommendation from 200 mg to 400 mg for acute pain management. No studies have directly compared the analgesic efficacy of different doses of celecoxib for the prevention of postoperative pain. In this prospective, double-blinded, placebo-controlled study, we compared oral celecoxib 200 mg to 400 mg when administered for premedication of outpatients undergoing minor ear-nose-throat surgery. A total of 93 healthy outpatients were assigned to 1 of 3 study groups: control (placebo;  $n = 30$ ), celecoxib 200 mg ( $n = 30$ ), or celecoxib 400 mg ( $n = 33$ ). The study drug was given orally 30-45 min before surgery, and all patients received a standardized general anesthetic technique. During the postoperative period, pain scores (0-10), recovery times, the need for rescue analgesics, quality of recovery (0-100), patient satisfaction with pain management (0-100), and side effects were recorded. Pain was assessed at 30-min intervals using a verbal rating scale, with 0 = no pain to 10 = worst pain imaginable, in the postanesthesia care unit and day surgery unit recovery areas and at 24 h after surgery. Celecoxib 400 mg was significantly more effective than 200 mg (and placebo) in reducing postoperative pain. Both celecoxib 200 mg and 400 mg were more effective than placebo in reducing the postoperative fentanyl requirement (74 +/- 67 micro g and 56 +/- 62 micro g versus 120 +/- 86 micro g, respectively). The larger dose of celecoxib significantly reduced the percentage of patients with severe pain at discharge (6% versus 37% and 30% in the celecoxib 200 mg and control groups, respectively). The median number of doses of oral analgesic medication after discharge was also significantly reduced in the celecoxib 400 mg group (0 versus 2 and 2 in the celecoxib 200 mg and control groups, respectively). However, no differences were found among the three study groups with respect to recovery times and secondary outcome variables (e.g., patient satisfaction and quality of recovery). We conclude that oral premedication with celecoxib 400 mg was more effective than 200 mg in reducing severe postoperative pain and the need for rescue analgesic medication in the postoperative period. IMPLICATIONS: Oral premedication with celecoxib 400 mg was more effective than 200 mg in reducing postoperative pain and the need for rescue analgesic medication in the early postoperative period. However, neither dose of celecoxib was more effective than a placebo in facilitating the recovery process after outpatient surgery.

Regaard, A. "The principles of pain management in advanced cancer." *British Journal of Community Nursing*. 5, no. 8(2000): 382-6, 388  
UI 12271231.

Pain is the most feared symptom for patients with advanced cancer. Although effective pain relief is critical to preserving quality of life for these patients, the incidence of uncontrolled pain is high. A variety of physiological mechanisms contribute to cancer pain, and psychological, social

and spiritual factors all contribute to the overall pain experience. Therefore the rationale for treatment must be appropriate. Regular assessment of both pain and treatment is indicated, as is the management of adverse reactions of treatment. In most cases, pain may be managed by conventional means (e.g. oral analgesia) but sometimes other modes of administration (e.g. transdermal/subcutaneous routes) may be more appropriate. In addition, some patients will require interventional treatment such as nerve blocks or radiotherapy, while in other patients non-drug therapies may be more appropriate. Improved assessment, education and communication can do much to alleviate pain in the patient with advanced cancer. [References: 18]

Regnard, C., et al. "Difficulties in identifying distress and its causes in people with severe communication problems." *International Journal of Palliative Nursing*. 9, no. 4(2003): 173-6 UI 12734454.

Reimer-Kent, J. "From theory to practice: preventing pain after cardiac surgery." *American Journal of Critical Care*. 12, no. 2(2003): 136-43 UI 12625171.

A pain management guideline was developed at the Royal Columbian Hospital, New Westminster, British Columbia, to prevent pain after cardiac surgery. The guideline was based on a wellness model and was predicted on the World Health Organization's analgesic ladder. Patients are given nonopioids around the clock and throughout the postoperative stay and are given an opioid to prevent procedural pain and treat breakthrough pain. In an evaluation of the guideline, records from 133 cardiac surgery patients were retrospectively reviewed. The type and dose of analgesics administered for the first 6 days after surgery, the effectiveness of the pain management plan, the occurrence of adverse effects, time to extubation, and postoperative lengths of stay were determined. Ninety-five percent of patients had effective pain relief. Almost all patients received acetaminophen around the clock. A total of 89% received indomethacin. All patients received opioids intermittently. Doses of opioids were converted to morphine oral equivalents, which peaked on day 1 after surgery (38 equivalents) and decreased sharply by day 2 (< 10 equivalents). Median postoperative length of stay was 5 days for patients who had bypass surgery and 6 days for patients who had valve surgery. This proactive, low-tech, low-risk, well-tolerated pain management approach is cost-effective, simple, and feasible to use. The findings support use of this approach in managing pain after cardiac surgery.

Ruetten, S., O. Meyer, and G. Godolias. "Endoscopic surgery of the lumbar epidural space (epiduroscopy): results of therapeutic intervention in 93 patients." *Minimally Invasive Neurosurgery*. 46, no. 1(2003): 1-4 UI 12640575.

Determination and therapy of the underlying pathology in chronic pain syndrome in the lumbar spine is frequently difficult. Minimally invasive and microsurgical techniques may offer advantages. Epiduroscopy is available for visualization of the lumbar epidural space. 93 patients with chronic back-leg pain syndrome were epiduroscopically operated. When findings were appropriate, mechanical instruments and the holmium:YAG laser were applied therapeutically. 45.9 % of these patients presented with positive results in postoperative examination. Pathomorphological processes corresponding to the multifactorial pain processes, which escape detection in modern imaging procedures, can be diagnosed in the epidural space using epiduroscopy. Therapeutic intervention is basically possible. However, use is limited due to technical difficulties. Navigation of the endoscope is especially limited in access via the hiatus sacralis.

Rukwied, R., et al. "Cannabinoid agonists attenuate capsaicin-induced responses in human skin." *Pain*. 102, no. 3(2003): 283-8 UI 12670670.

The induction of hyperalgesia upon capsaicin administration requires activation of specific sub-classes of nociceptive afferent C-fibres providing nociceptive input to the central nervous system. It has been demonstrated in animal models that the endocannabinoid anandamide has anti-hyperalgesic properties upon capsaicin stimulation, albeit it also binds to vanilloid receptors. In the present study we topically administered the cannabinoid receptor ligand HU210 to human skin and investigated its effects on capsaicin-induced pain and hyperalgesia. We demonstrated that pre-treatment with HU210 significantly reduced the perception of pain following the administration of capsaicin. Heat pain thresholds were significantly reduced by capsaicin application measured 5 and 30min after administration. In contrast, at the HU210 pre-treated skin

sites capsaicin failed to induce heat hyperalgesia during the fifth minute of administration. Secondary mechanical hyperalgesia to touch (allodynia) was measured during the fifth, 15th and 30th minute after capsaicin administration. In comparison to the ethanol control site, the area of touch-evoked allodynia was significantly reduced at the HU210 skin site during the first two measures. However, 30min after the administration of capsaicin no significant differences of allodynia were observed between the HU210 and ethanol pre-treated skin. The present study provided evidence for analgesic and anti-hyperalgesic properties of a topically applied cannabinoid receptor ligand, which might have important therapeutic implications in humans.

Sabatine, M. S., and E. M. Antman. "The thrombolysis in myocardial infarction risk score in unstable angina/non-ST-segment elevation myocardial infarction." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): 89S-95S UI 12644346.

Risk stratification in unstable angina (UA)/non-ST-segment elevation myocardial infarction (NSTEMI) can provide an estimate of a patient's prognosis and optimize clinical choices. The Thrombolysis In Myocardial Infarction (TIMI) risk score for UA/NSTEMI is an integrated approach that uses baseline variables that are part of the routine medical evaluation to identify patients at high risk for death and other major cardiac ischemic events. Using multivariable logistic regression, seven independent predictor variables were identified: age  $\geq$  65 years,  $\geq$  3 risk factors for coronary artery disease (CAD), known CAD (stenosis  $\geq$  50%), severe anginal symptoms ( $\geq$  2 anginal events in preceding 24 h), use of aspirin in the last seven days, ST-segment deviation  $\geq$  0.05 mV, and elevated serum cardiac markers of necrosis. Each predictor carried similar prognostic weight; therefore, a risk score was constructed as the simple arithmetic sum of the number of predictors. The rate of death, MI, or urgent revascularization significantly increased as the TIMI risk score increased, ranging from  $<$  5% for patients with a risk score of 0 or 1 to  $>$  40% for patients with a risk score of 6 or 7. The risk score has been validated in several other trials of UA/NSTEMI. In addition, using the risk score to categorize patients also effectively defines a gradient for benefit with specific treatments such as low-molecular-weight heparins, glycoprotein IIb/IIIa inhibitors, and an early invasive strategy. [References: 35]

Sarig-Bahat, H. "Evidence for exercise therapy in mechanical neck disorders." *Manual Therapy*. 8, no. 1(2003): 10-20 UI 12586557.

In spite of neck disorders being so common in the population, little evidence supporting effective interventions has been identified. The objective of this systematic review was to determine if various exercise methods are effective in treating the different mechanical neck disorders occurring in adults. Sixteen trials were included: nine randomized controlled trials (RCTs) and seven randomized comparative trials (CTs). The average PEDro score indicated moderate methodological quality. PEDro results showed the subject- and therapist-blinding criteria to be inappropriate. Findings revealed relatively strong evidence supporting the effectiveness of proprioceptive exercises and dynamic resisted strengthening exercises of the neck-shoulder musculature for chronic or frequent neck disorders. Moderate evidence was found to support early mobilizing exercises in acute whiplash patients. The evidence identified could not support the effectiveness of group exercise, neck schools or single sessions of extension-retraction exercises. Clinicians are encouraged to incorporate these findings into their practice when planning the management of mechanical neck disorders. There is great need for well-designed RCTs to further investigate the topic and perhaps evaluate exercise effectiveness in relation to more specific disorders, e.g., discogenic vs facet joint originated disorder. [References: 31]

Scudds, R. A., D. A. Fishbain, and R. J. Scudds. "Concurrent validity of an electronic descriptive pain scale." *Clinical Rehabilitation*. 17, no. 2(2003): 206-8 UI 12625662.

The study objective was to assess the concurrent validity of the Electronic Descriptive Pain Scale (EDPS), a pain scale built into a transcutaneous electrical nerve stimulation device. One hundred patients in an outpatient physiotherapy (PT) clinic participated (mean age 41.30 years, SD 13.95). Before and after a PT treatment, subjects rated their current pain intensity with the EDPS, a visual analogue scale, a numerical pain rating scale, and the McGill Pain Questionnaire's Present Pain Intensity. The results showed relatively high significant correlations between the EDPS and each of the other pain scales.

Seymour, R. A., et al. "An investigation into the comparative efficacy of soluble aspirin and solid paracetamol in postoperative pain after third molar surgery." *British Dental Journal*. 194, no. 3(2003): 153-7; discussion 149 UI 12598885.

**OBJECTIVE:** To compare the efficacy of soluble aspirin 900 mg and paracetamol 1,000 mg in patients with postoperative pain after third molar surgery. **DESIGN:** A randomised, placebo controlled, double-blind study. **SETTING:** Day stay units of Oral and Maxillofacial Surgery at Cardiff Dental Hospital and Hexham General Hospital, Northumberland. **SUBJECTS AND METHODS:** One hundred and sixty-seven (104 female) patients who required the removal of their impacted third molars under general anaesthesia. **INTERVENTION:** In the early postoperative period, patients were medicated with either a single dose of soluble aspirin 900 mg, solid paracetamol 1,000 mg or placebo. **MAIN OUTCOME MEASURES:** Pain intensity was measured on 100 mm visual analogue scales at 0, 5, 10, 15, 20, 30, 45, 60, 90, 120 and 240 minutes after dosing. Other efficacy variables evaluated included time to rescue medication and an overall assessment of the study medication efficacy by the patient on completion of the study. **RESULTS:** One hundred and sixty-seven patients consented to take part in the study, but only 153 were medicated. Of the 14 patients not treated, 10 failed to develop sufficient pain to enter the study, two withdrew consent, one had an adverse reaction to the general anaesthetic and one was a protocol violator. Over the four hour investigation period, patients treated with soluble aspirin reported significantly less pain when compared with those treated with paracetamol (mean difference in AUC(0-240) = -2001, 95% CI -3893 to -109, p=0.038) and placebo (mean difference in AUC(0-240) = -3470, 95% CI -5719 to -1221, p=0.003). Similarly, at 20 and 30 minutes after dosing, patients in the soluble aspirin group were reporting significantly less pain than those in the paracetamol treatment group (mean difference in pain intensity: at 20 minutes -7.9, 95% CI -15.3 to -0.6, p=0.035; at 30 minutes -10.6, 95% CI -18.6 to -2.6, p=0.010). There were no significant differences between treatment groups with respect to the number of patients requiring rescue medication, however the time to dosing was significantly longer for those taking soluble aspirin when compared with placebo (hazard ratio 2.34, 95% CI 1.41 to 3.88, p<0.001). **CONCLUSION:** The findings from this study showed that soluble aspirin 900 mg provides significant and more rapid analgesia than paracetamol 1,000 mg in the early postoperative period after third molar surgery.

Shanahan, E. M., et al. "Suprascapular nerve block (using bupivacaine and methylprednisolone acetate) in chronic shoulder pain." *Annals of the Rheumatic Diseases*. 62, no. 5(2003): 400-6 UI 12695149.

**BACKGROUND:** Shoulder pain from inflammatory arthritis and/or degenerative disease is a common cause of morbidity in the community. It is difficult to treat and there are limited data on the efficacy of most interventions. Suprascapular nerve block has shown promise in limited trials in reducing shoulder pain. There have been no large randomised placebo controlled trials examining the efficacy of suprascapular nerve block for shoulder pain in arthritis and/or degenerative disease using pain and disability end points. **OBJECTIVE:** To perform a randomised, double blind, placebo controlled trial of the efficacy of suprascapular nerve block for shoulder pain in rheumatoid arthritis (RA) and/or degenerative disease of the shoulder. **METHODS:** 83 people with chronic shoulder pain from degenerative disease or RA took part in the trial. If a person had two painful shoulders, these were randomised separately. A total of 108 shoulders were randomised. Patients in the group receiving active treatment had a single suprascapular nerve block following the protocol described by Dangoisse et al, while those in the other group received a placebo injection of normal saline administered subcutaneously. The patients were followed up for 12 weeks by an observer who was unaware of the randomisation and reviewed at weeks 1, 4, and 12 after the injection. Pain, disability, and range of movement data were gathered. **RESULTS:** Clinically and statistically significant improvements in all pain scores, all disability scores, and some range of movement scores in the shoulders receiving suprascapular nerve block compared with those receiving placebo were seen at weeks 1, 4, and 12. There were no significant adverse effects in either group. **CONCLUSION:** Suprascapular nerve block is a safe and efficacious treatment for the treatment of shoulder pain in degenerative disease and/or arthritis. It improves pain, disability, and range of movement at the shoulder compared with placebo. It is a useful adjunct treatment for the practising clinician to assist in the management of a difficult and common clinical problem.

Sherman, P. M., et al. "Acetabular paralabral cyst: an uncommon cause of sciatica." *Skeletal Radiology*. 32, no. 2(2003): 90-4 UI 12589488.

The association between tears of the acetabular labrum and paralabral cysts has been well documented, and magnetic resonance imaging (MRI) has been shown to be the most accurate noninvasive method of depicting not only the normal anatomic structures of the hip, but also the common pathologic processes such as labral tears and paralabral cysts. We present the case of an acetabular paralabral cyst that resulted in clinically symptomatic compression of the sciatic nerve.

Siddiqui, M. A., and I. A. Khan. "Differential electrocardiographic artifact from implanted spinal cord stimulator." *International Journal of Cardiology*. 87, no. 2-3(2003): 307-9 UI 12559559.

Siddle, A. "Pain assessment and management relating to an indwelling catheter." *British Journal of Nursing*. 12, no. 8(2003): 475, 478, 480-3 UI 12743477.

This care study describes and critically examines the nursing role in continence care and the management of pain using the Roper et al (2000) model as a framework. Current practice in pain management and care of a patient with an indwelling urinary catheter is evaluated against best practice suggested by recent research evidence. A multidimensional and multidisciplinary team approach was taken to alleviate pain and promote independence in catheter care. Imagination and a positive attitude led to greater patient comfort and dignity. Recommendations for evidence-based practice are made. [References: 35]

Sittl, R., N. Griessinger, and R. Likar. "Analgesic efficacy and tolerability of transdermal buprenorphine in patients with inadequately controlled chronic pain related to cancer and other disorders: a multicenter, randomized, double-blind, placebo-controlled trial." *Clinical Therapeutics*. 25, no. 1(2003): 150-68 UI 12637117.

**BACKGROUND:** Buprenorphine is a potent opioid analgesic that is available in sublingual and parenteral formulations. A new formulation, buprenorphine transdermal delivery system (TDS), has been developed. **OBJECTIVE:** The aim of this study was to compare the analgesic efficacy and tolerability of the 3 available dosages of buprenorphine TDS (35.0, 52.5, and 70.0 microg/h) with placebo. **METHODS:** This was a randomized, double-blind, placebo-controlled, multicenter study. Patients with chronic, severe pain related to cancer or other diseases and inadequately controlled with weak opioids were randomized to receive buprenorphine TDS 35.0, 52.5, or 70.0 microg/h or placebo patch for up to 15 days. A new patch was applied every 72 hours, for a total of 5 patches. All patients were permitted rescue analgesia with sublingual buprenorphine tablets (0.2 mg) as required for breakthrough pain. **RESULTS:** A total of 157 patients (86 women, 71 men; mean [SD] age, 58.7 and 2 over black square; [1 and 2 over black square]1.8] years) were initially enrolled in the study. Buprenorphine TDS was associated with significantly higher response rates than was placebo at the 35.0- and 52.5-microg/h dosages (36.6% and 47.5%, respectively, vs 16.2%;  $P=0.032$  and  $P=0.003$ , respectively) and a numerically higher response rate at 70.0 microg/h (33.3%), although this difference did not reach statistical significance. Patients treated with buprenorphine TDS experienced a 56.7% reduction in use of sublingual rescue analgesic during the study compared with an 8% reduction with the placebo patch. A total of 43.5% of patients treated with buprenorphine TDS reported good or complete pain relief compared with 32.4% in the placebo group. Pain intensity decreased in a dose-dependent manner with buprenorphine TDS, and the duration of sleep uninterrupted by pain was improved by the end of the study. More than three fourths (78.8%) of patients in the placebo and buprenorphine TDS groups reported at least 1 adverse event (AE) during the study. The most common AEs were central nervous system and gastrointestinal symptoms. The majority of treatment-related AEs were mild or moderate in intensity and were typical of those occurring at the beginning of therapy with a strong opioid. **CONCLUSIONS:** Buprenorphine TDS was shown to be an effective analgesic against chronic, severe pain in this study population. Patients treated with this new formulation of buprenorphine showed improved duration of sleep and reduced need for additional oral analgesics.

Sitzman, K. "Headache tips." *AAOHN Journal*. 51, no. 4(2003): 196 UI 12729032.

Stallmeyer, M. J., and A. O. Ortiz. "Facet blocks and sacroiliac joint injections." *Techniques in Vascular & Interventional Radiology*. 5, no. 4(2002): 201-6 UI 12599171.

Facet and sacroiliac joint pathology are not an uncommon cause of back or neck pain. Imaging-guided techniques provide ready access to these synovial joints. Percutaneous injection of the facet or sacroiliac joints yields important diagnostic information as to whether or not the interrogated joint is involved in the patient's pain syndrome. The injection of a steroid-anesthetic mixture into these joints is capable of providing significant, albeit temporary, pain relief. Copyright 2002, Elsevier Science (USA). All rights reserved.

Stanik-Hutt, J. A. "Pain management in the critically ill." *Critical Care Nurse*. 23, no. 2(2003): 99-103 UI 12725199.

Stark, S. E. "Bio-ethics and physician liability: the liability effects of developing pain management standards." *St. Thomas Law Review*. 14, no. 3(2002): 601-40 UI 12741384.

Sussman, C. "Pain doesn't have to be a part of wound care." *Ostomy Wound Management*. 49, no. 3(2003): 10-2 UI 12732746.

Swinkels-Meewisse, E. J., et al. "Psychometric properties of the Tampa Scale for kinesiophobia and the fear-avoidance beliefs questionnaire in acute low back pain." *Manual Therapy*. 8, no. 1(2003): 29-36 UI 12586559.

The transition from acute to chronic low back pain (LBP) is influenced by many interacting factors. Pain-related fear, as measured by the Tampa Scale for Kinesiophobia (TSK) and the Fear-Avoidance Beliefs Questionnaire (FABQ), is one of these factors. The objectives of this study were to investigate, in a population with acute LBP, the reliability of TSK and FABQ through evaluation of the internal consistency, the test-retest reliability, and the concurrent validity between TSK and FABQ. One hundred and Seventy-Six patients suffering LBP for no longer than 4 weeks completed a Visual Analogue Scale for pain (VAS), the TSK, the FABQ, and a socio-demographic questionnaire. Each patient completed the VAS, TSK, and FABQ twice within 24 h. Internal consistency of TSK and FABQ scores range from  $\alpha=0.70$  to  $0.83$ . Test-retest reliability ranges from  $r(s)=0.64$  to  $0.80$  ( $P<0.01$ ). Concurrent validity is moderate, ranging from  $r(s) =0.33$  to  $0.59$  ( $P<0.01$ ). It may be concluded that in a population with acute LBP, both the TSK and the FABQ are reliable measures of pain-related fear. In the clinical setting they may provide the practitioner a means of identifying pain-related fear in a patient with acute LBP.

Taylor, A. G., et al. "Effects of adjunctive Swedish massage and vibration therapy on short-term postoperative outcomes: a randomized, controlled trial." *Journal of Alternative & Complementary Medicine*. 9, no. 1(2003): 77-89 UI 12676037.

**OBJECTIVE:** To examine the effects of adjunctive postoperative massage and vibration therapy on short-term postsurgical pain, negative affect, and physiologic stress reactivity. **DESIGN:** Prospective, randomized controlled trial. The treatment groups were: (1) usual postoperative care (UC); (2) UC plus massage therapy; or (3) UC plus vibration therapy. **SETTING:** The University of Virginia Hospital Surgical Units, Gynecology-Oncology Clinic, and General Clinical Research Center. **SUBJECTS:** One hundred and five ( $N = 105$ ) women who underwent an abdominal laparotomy for removal of suspected cancerous lesions. **INTERVENTIONS:** All patients received UC with analgesic medication. Additionally, the massage group received standardized 45-minute sessions of gentle Swedish massage on the 3 consecutive evenings after surgery and the vibration group received 20-minute sessions of inaudible vibration therapy (physiotones) on the 3 consecutive evenings after surgery, as well as additional sessions as desired. **OUTCOME MEASURES:** Sensory pain, affective pain, anxiety, distress, analgesic use, systolic blood pressure, 24-hour urine free cortisol, number of postoperative complications, and days of hospitalization. **RESULTS:** On the day of surgery, massage was more effective than UC for affective ( $p = 0.0244$ ) and sensory pain ( $p = 0.0428$ ), and better than vibration for affective pain ( $p = 0.0015$ ). On postoperative day 2, massage was more effective than UC for distress ( $p = 0.0085$ ), and better than vibration for sensory pain ( $p = 0.0085$ ). Vibration was also more effective than UC for sensory pain ( $p = 0.0090$ ) and distress ( $p = .0090$ ). However, after controlling for multiple comparisons and multiple outcomes, no significant differences were found. **CONCLUSIONS:** Gentle Swedish massage applied

postoperatively may have minor effects on short-term sensory pain, affective pain, and distress among women undergoing an abdominal laparotomy for removal of suspected malignant tissues.

Teanby, S. "A literature review into pain assessment at triage in accident and emergency departments." *Accident & Emergency Nursing*. 11, no. 1(2003): 12-7 UI 12718945.

Tohya, T. "Conservative management of the acute abdomen secondary to hemorrhagic disease of the ovary." *International Journal of Gynaecology & Obstetrics*. 80, no. 2(2003): 165-6 UI 12566190.

Tokmakidis, S. P., et al. "The effects of ibuprofen on delayed muscle soreness and muscular performance after eccentric exercise." *Journal of Strength & Conditioning Research*. 17, no. 1(2003): 53-9 UI 12580656.

The purpose of this study was to examine the effects of ibuprofen on delayed onset muscle soreness (DOMS), indirect markers of muscle damage and muscular performance. Nineteen subjects (their mean [+/- SD] age, height, and weight was 24.6 +/- 3.9 years, 176.2 +/- 11.1 cm, 77.3 +/- 18.7 kg) performed the eccentric leg curl exercise to induce muscle soreness in the hamstrings. Nine subjects took an ibuprofen pill of 400 mg every 8 hours within a period of 48 hours, whereas 10 subjects received a placebo randomly (double blind). White blood cells (WBCs) and creatine kinase (CK) were measured at pre-exercise, 4-6, 24, and 48 hours after exercise and maximal strength (1 repetition maximum). Vertical jump performance and knee flexion range of motion (ROM) were measured at pre-exercise, 24 and 48 hours after exercise. Muscle soreness increased ( $p < 0.05$ ) in both groups after 24 and 48 hours, although the ibuprofen group yielded a significantly lower value ( $p < 0.05$ ) after 24 hours. The WBC levels were significantly ( $p < 0.05$ ) increased 4-6 hours postexercise in both groups with no significant difference ( $p > 0.05$ ) between the 2 groups. The CK values increased ( $p < 0.05$ ) in the placebo group at 24 and 48 hours postexercise, whereas no significant differences ( $p > 0.05$ ) were observed in the ibuprofen group. The CK values of the ibuprofen group were lower ( $p < 0.05$ ) after 48 hours compared with the placebo group. Maximal strength, vertical jump performance, and knee ROM decreased significantly ( $p < 0.05$ ) after exercise and at 24 and 48 hours postexercise in both the placebo and the ibuprofen groups with no differences being observed ( $p > 0.05$ ) between the 2 groups. The results of this study reveal that intake of ibuprofen can decrease muscle soreness induced after eccentric exercise but cannot assist in restoring muscle function.

Topol, E. J. "A guide to therapeutic decision-making in patients with non-ST-segment elevation acute coronary syndromes." *Journal of the American College of Cardiology*. 41, no. 4 Suppl S(2003): S123-9 UI 12644350.

Recent clinical trial evidence supports an inflammatory etiology in acute ischemic heart disease. When a segment of coronary artery becomes inflamed, important cytokines, such as tissue factor, are released, facilitating thrombosis. Serum inflammatory markers are elevated in most acute coronary syndrome patients at presentation. Mortality risk has been shown to be associated with increased levels of high-sensitivity C-reactive protein (CRP), interleukin 6, and serum vascular cell adhesion molecule. Platelets, which are rich in inflammatory mediators (CD40 and its ligand thrombospondin, and phospholipase A2), also supply important triggers for the inflammatory cascade. In addition, more than 35 platelet-associated messenger ribonucleic acid mediators involved in arterial injury and inflammation have been found. The use of biomarkers of inflammation, such as CRP, and of the sequelae of embolization, such as troponin, provide a window into the underlying pathophysiology of acute ischemic heart disease. New agents from three distinct drug classes have recently flooded the therapeutic armamentarium. Decision-making is further complicated by the choice of an invasive (aggressive) or a medical (conservative) strategy of management with respect to coronary revascularization. For patients at highest risk, aspirin, beta-blockers, nitrates, and a statin should be given, and clopidogrel, enoxaparin, a glycoprotein (GP) IIb/IIIa inhibitor, plus an invasive strategy should be considered. For intermediate- and low-risk patients, a "sliding-scale" approach may be best. Decisions about the three classes of antithrombotics--low-molecular-weight heparins, GP IIb/IIIa inhibitors, and thienopyridines--along with whether to adopt an early invasive strategy, should be made on an individual basis. [References: 40]

Tsai, P. F., and S. Tak. "Disease-specific pain measures for osteoarthritis of the knee or hip." *Geriatric Nursing*. 24, no. 2(2003): 106-9 UI 12714963.

Many elders suffer from chronic pain resulting from osteoarthritis (OA) of the knee or hip. This review identifies useful pain measures for assessing OA. Several disease-specific pain measures are discussed: Arthritis Impact Measurement Scales pain subscale, Western Ontario and McMaster University OA Index pain subscale, pain subscales of the Index of Severity for OA of the Hip or of the Knee, and Knee Pain Scale. Generic pain measures, the verbal descriptor scale, and the 21-point box scale, also are discussed. Because knee/hip OA is characterized by pain that is activated during or aggravated by certain activities, disease-specific pain scales that measure pain associated with these various activities are more effective than a generic pain scale. [References: 37]

Turk, D. C. "Chronic pain and whiplash associated disorders: rehabilitation and secondary prevention." *Pain Research & Management*. 8, no. 1(2003): 40-3 UI 12717478.

Turner-Stokes, L., and S. Rusconi. "Screening for ability to complete a questionnaire: a preliminary evaluation of the AbilityQ and ShoulderQ for assessing shoulder pain in stroke patients." *Clinical Rehabilitation*. 17, no. 2(2003): 150-7 UI 12625655.

**OBJECTIVES:** To assess the repeatability of the AbilityQ—a screening tool to assess technical ability to complete a questionnaire—in patients with complex disabilities following stroke. To evaluate the validity of the AbilityQ in predicting repeatability and consistency of response to verbal and visual analogue scale questions in the ShoulderQ in those with shoulder pain. **DESIGN:** In a cross-sectional study, the AbilityQ and 'ShoulderQ' were administered on two consecutive days by a single investigator. **SETTING:** Six regional rehabilitation centres in the UK managing patients with severe complex neurological disability. **SUBJECTS:** Forty-nine patients with anterior or posterior circulation strokes: 13 (63%) had cognitive deficits and 28 (57%) had communicative deficits. **RESULTS:** Thirty-one (63.3%) patients required some degree of help in completing the AbilityQ. Percentage agreement for individual questions between day 1 and day 2 ranged from 55 to 88% with kappa values from 0.07 to 0.79. Repeatability of ShoulderQ responses was 36-72% for the verbal questions (kappa values 0.16-0.56). For visual analogue scale (VAS) questions, agreement +/- 1 on a 10-point scale was 36-59% with intraclass correlation coefficients 0.50-0.60 ( $p < 0.01$ ). High verbal ( $> \text{ or } = 3/4$ ) and VAS scores (3/3) on the AbilityQ had positive predictive values for good repeatability in the ShoulderQ of 80% and 58% respectively. Mismatched AbilityQ responses to verbal and VAS questions showed a positive predictive value of 92% for similar inconsistency in the ShoulderQ and a negative predictive value of 90%. **CONCLUSIONS:** In this preliminary evaluation the AbilityQ and the ShoulderQ each demonstrated a moderate level of repeatability in a group of patients expected to have difficulty in completing questionnaires. The AbilityQ appears to have some clinical usefulness in identifying those able to respond to the ShoulderQ and, where responses to verbal and VAS questions conflict, may offer some guidance as to which are most likely to be accurate in that individual. Further development is underway.

Utiger, D., et al. "Transient minor improvement of high altitude headache by sumatriptan." *High Altitude Medicine & Biology*. 3, no. 4(2002): 387-93 UI 12631424.

High-altitude headache often fulfills the criteria of migraine. Therefore, we hypothesized that sumatriptan, a 5-HT<sub>1</sub> receptor agonist specifically effective for treatment of migraine, would also alleviate high altitude headache. A randomized, placebo-controlled double-blind trial was performed on 29 mountaineers with at least moderate headache on the day of arrival at 4559 m. Fourteen subjects received 100 mg sumatriptan orally and 15 subjects received placebo. Before treatment there were no significant differences between groups regarding rate of ascent, duration and severity of headache, and acute mountain sickness score. All 6 female subjects were randomly assigned to placebo. Absolute values and the reduction of headache scores 1, 3, and 12 h after the administration of sumatriptan did not differ between treatment groups, but headache scores tended to be lower with sumatriptan after 1 or 3 h when compared with placebo. Considering only male mountaineers, there was a significant decrease of headache scores after 1 and 3 h. Because there was only a minor transient amelioration of high altitude headache with

sumatriptan, we conclude that 5-HT<sub>1</sub> receptors do not play a major role in the pathophysiology of high altitude headache.

Vallerand, A. H. "Treating osteoarthritis pain." *Nurse Practitioner*. 28, no. 4(2003): 7-15; quiz 16-7 UI 12682518.

van Balken, M. R., et al. "Percutaneous tibial nerve stimulation as neuromodulative treatment of chronic pelvic pain." *European Urology*. 43, no. 2(2003): 158-63; discussion 163 UI 12565774.

**PURPOSE:** Neuromodulative therapies have been used with moderate success in patients with chronic pelvic pain. Intermittent Percutaneous Tibial Nerve Stimulation (PTNS) is a new, minimally invasive treatment option, which has shown to significantly decrease accompanying pain complaints in patients with lower urinary tract dysfunction, such as urge incontinence or urgency/frequency. In our study, we evaluate the objective results of PTNS in patients with chronic pelvic pain as their main complaint. **MATERIALS AND METHODS:** In a prospective multicentre trial PTNS was evaluated in 33 patients with chronic pelvic pain. Effects were recorded by Visual Analogue Scale (VAS) for pain diaries, the McGill pain questionnaire and the SF-36 general quality of life questionnaire at baseline and after 12 weeks of treatment. Subjective (patients' request to continue chronic treatment to keep the obtained success) and objective responses (decrease in mean VAS >50% and VAS <3 after treatment) were evaluated. **RESULTS:** A subjective response was seen in 42% of all patients. In seven patients (21%) mean VAS decreased >50%, in six cases (18%) the decrease was >25%. After 12 weeks of treatment, seven patients (21%) ended up with a mean VAS <3. In all patients quality of life (SF-36) significantly improved, as did the total pain rate intensity (McGill). **CONCLUSIONS:** Despite very modest overall success rates and the need for placebo-controlled studies, PTNS may have a place in the treatment of patients with chronic pelvic pain who have already tried many other therapies and are left with no further option.

van der Windt, D. A., and L. M. Bouter. "Physiotherapy or corticosteroid injection for shoulder pain?" *Annals of the Rheumatic Diseases*. 62, no. 5(2003): 385-7 UI 12695146.

Van Niekerk, L. M., and F. Martin. "The impact of the nurse-physician relationship on barriers encountered by nurses during pain management." *Pain Management Nursing*. 4, no. 1(2003): 3-10 UI 12707863.

The aim of the current investigation was to examine the barriers encountered by Tasmanian registered nurses when attempting to provide optimal pain management. The impact of nurse satisfaction with their professional relationship with physicians during pain management on the types of barriers encountered was also examined. A total of 1,015 registered nurses completed a 21-item survey that examined the types of barriers encountered during pain management. In addition, data were gathered on nurses' satisfaction with their professional relationship with physicians during pain management. More than one-third of the respondents indicated that they had encountered at least one type of barrier to providing optimal pain relief, including insufficient cooperation by physicians and inadequate prescriptions of analgesic medications. Nurses who did not feel adequately consulted by physicians were significantly more likely to encounter barriers such as insufficient cooperation by patient's physicians and inadequate prescription of analgesic medications. The barriers to effective pain management encountered by nurses were affected by their relationship with physicians. Education, for both nurses and physicians, concerning the role of the nurse in the workplace will help to ensure that nurses encounter fewer barriers during pain management. Optimal pain management practice will result if guidelines for dealing effectively with barriers are tailored to the specific type of institution and the unit within those institutions. Copyright 2003 by the American Society of Pain Management Nurses

Varney, M. A., and R. W. Gereau. "Metabotropic glutamate receptor involvement in models of acute and persistent pain: prospects for the development of novel analgesics." *Current Drug Targets - Cns & Neurological Disorders*. 1, no. 3(2002): 283-96 UI 12769620.

The excitatory amino acid glutamate plays a major role in nociceptive processing. Ionotropic and metabotropic glutamate receptors are expressed in relevant areas of the brain, spinal cord and periphery that are involved in pain sensation and transmission. Activation of mGlu receptors along the pain neuraxis can result in either pronociceptive or antinociceptive behaviors depending

on the subtype of mGluR and its location. The data published to date most strongly support the idea that mGlu1 antagonists might act as broad-spectrum analgesics. Several studies pointing to a functional upregulation of mGlu2/3 in chronic pain models suggest that agonists of these receptors might also be effective analgesics in certain conditions, most notably inflammation-induced hyperalgesia and allodynia. The expression of mGluRs throughout the pain neuraxis and the differing roles of the mGluRs in each of these regions makes it difficult to predict the efficacy of mGluR ligands based on in vitro or local administration studies. Potent, systemically active compounds that show mGluR subtype selectivity will be critical to undertake more detailed analyses in animal models of pain. [References: 147]

Wade, D. T., et al. "A preliminary controlled study to determine whether whole-plant cannabis extracts can improve intractable neurogenic symptoms." *Clinical Rehabilitation*. 17, no. 1(2003): 21-9 UI 12617376.

**OBJECTIVES:** To determine whether plant-derived cannabis medicinal extracts (CME) can alleviate neurogenic symptoms unresponsive to standard treatment, and to quantify adverse effects. **DESIGN:** A consecutive series of double-blind, randomized, placebo-controlled single-patient cross-over trials with two-week treatment periods. **SETTING:** Patients attended as outpatients, but took the CME at home. **SUBJECTS:** Twenty-four patients with multiple sclerosis (18), spinal cord injury (4), brachial plexus damage (1), and limb amputation due to neurofibromatosis (1). **INTERVENTION:** Whole-plant extracts of delta-9-tetrahydrocannabinol (THC), cannabidiol (CBD), 1:1 CBD:THC, or matched placebo were self-administered by sublingual spray at doses determined by titration against symptom relief or unwanted effects within the range of 2.5-120 mg/24 hours. **Measures used:** Patients recorded symptom, well-being and intoxication scores on a daily basis using visual analogue scales. At the end of each two-week period an observer rated severity and frequency of symptoms on numerical rating scales, administered standard measures of disability (Barthel Index), mood and cognition, and recorded adverse events. **RESULTS:** Pain relief associated with both THC and CBD was significantly superior to placebo. Impaired bladder control, muscle spasms and spasticity were improved by CME in some patients with these symptoms. Three patients had transient hypotension and intoxication with rapid initial dosing of THC-containing CME. **CONCLUSIONS:** Cannabis medicinal extracts can improve neurogenic symptoms unresponsive to standard treatments. Unwanted effects are predictable and generally well tolerated. Larger scale studies are warranted to confirm these findings.

Wagner, A. L., and F. R. Murtagh. "Selective nerve root blocks." *Techniques in Vascular & Interventional Radiology*. 5, no. 4(2002): 194-200 UI 12599170.

Selective nerve root blocks are an effective way of diagnosing and treating radicular pain in many patients. Although traditionally performed under fluoroscopic guidance, computed tomography (CT) and CT fluoroscopy have been increasingly used to direct needle placement. This article discusses the indications and technique of selective nerve root blocks in the cervical, thoracic, and lumbar spine, as well as the evidence supporting their use in the treatment of patients with radiculopathy and/or back pain. Copyright 2002, Elsevier Science (USA). All rights reserved.

Walker, J. A. "Philosophy, knowledge and theory in the assessment of pain." *British Journal of Nursing*. 12, no. 8(2003): 494-501 UI 12743479.

Pain is generally accepted to be an unpleasant sensory experience that can affect patients' quality of life if not addressed adequately. Pain assessment is a key aspect in the nursing management and delivery of care within the clinical environment. Effective pain management is thus reliant on a comprehensive assessment of the patient and his/her pain. It is through the assessment process that the skilled nurse utilizes many aspects of knowledge including that of the underlying pathophysiology, pharmacological knowledge of the drugs available for use, and knowledge of the patient being assessed. The use of these varying types of knowledge is essential when caring for a variety of patients. To ensure pain assessment is based on sound judgement, effective nurses will utilize their knowledge acquired through different sources, including any relevant theories or research, and their understanding of the philosophical dimensions of pain and its treatment. The ideology behind effective pain assessment and pain management is to achieve a pain-free status whenever possible. Although this sets the nurse a

very difficult challenge, the aim is to ensure that the patient achieves the best possible treatment. [References: 70]

Watanabe, A. T., E. Nishimura, and J. Garris. "Image-guided epidural steroid injections." *Techniques in Vascular & Interventional Radiology*. 5, no. 4(2002): 186-93 UI 12599169.

Epidural steroid injection has been proven to be useful in the treatment of acute lumbosacral radicular pain syndromes. The use of image guidance significantly increases accuracy and decreases complication rates. The technique of performing these injections, including translaminar approach, is described in this article. Necessary precautions and potential risks are also described. Copyright 2002, Elsevier Science (USA). All rights reserved.

Weinbroum, A. A., et al. "Preoperative and postoperative dextromethorphan provides sustained reduction in postoperative pain and patient-controlled epidural analgesia requirement: a randomized, placebo-controlled, double-blind study in lower-body bone malignancy-operated patients." *Cancer*. 97, no. 9(2003): 2334-40 UI 12712491.

BACKGROUND: Pain is mediated centrally by N-methyl-D-aspartate (NMDA) receptors. The antinociceptive effects of preincision dextromethorphan (DM), an NMDA antagonist, have been demonstrated in surgical patients under general or epidural anesthesia. The authors investigated the effects of DM on postoperative pain and other parameters in patients undergoing surgery for bone malignancy under standardized combined general and epidural anesthesia using patient-controlled epidural analgesia (PCEA) postoperatively. METHODS: Patients received placebo or DM 90 mg (30 patients per group) in a double-blind manner preoperatively and on each of the two following days. Postoperative PCEA consisted of 1.6 mg ropivacaine plus 4 microg/mL fentanyl both continuously and by demand up to 96 hours, starting when subjective pain intensity was greater than or equal to 4/10 (visual analog score). Rescue drugs on demand (paracetamol or dipyrone orally) were also available. RESULTS: The DM patients experienced about 50% ( $P < 0.01$ ) less pain than their placebo counterparts for more than 2 postoperative days and they rated their overall maximal pain intensity by one-half that estimated by the placebo-treated patients ( $P < 0.01$ ). The DM group also consumed 30-50% less epidural analgesics than the total amount consumed by the placebo-medicated group ( $P < 0.01$ ) and demanded significantly ( $P < 0.05$ ) fewer rescue drugs on the first postoperative day. They were less sedated (40-60%,  $P < 0.01$ ) and reported 50% fewer overall side effects ( $P < 0.05$ ). The groups were similar for the need for urinary catheterization, time of first ambulation, and/or discharge home. CONCLUSIONS: A 3-day DM administration is associated with better pain reduction in patients undergoing surgery for bone malignancy under combined general and epidural anesthesia with postoperative PCEA compared with placebo without increasing side effects. Copyright 2003 American Cancer Society. DOI 10.1002/cncr.11330

Weiner, D. K., et al. "Efficacy of percutaneous electrical nerve stimulation for the treatment of chronic low back pain in older adults." *Journal of the American Geriatrics Society*. 51, no. 5(2003): 599-608 UI 12752833.

OBJECTIVES: To determine the efficacy of a complementary analgesic modality, percutaneous electrical nerve stimulation (PENS), for the treatment of chronic low back pain (CLBP) in community-dwelling older adults. DESIGN: Randomized, controlled clinical trial. SETTING: University of Pittsburgh Pain Evaluation and Treatment Institute. PARTICIPANTS: Thirty-four English speaking, community-dwelling adults aged 65 and older with CLBP of at least moderate intensity experienced every day or almost every day. INTERVENTION: Subjects were randomized to receive twice-weekly PENS and physical therapy (PT) or sham PENS and physical therapy for 6 weeks. MEASUREMENTS: At baseline, immediately after the 6-week intervention period, and 3 months later, the primary outcome measures pain intensity and pain-related disability were assessed. The secondary outcome measures physical performance (timed chair rise, functional reach, gait speed, static and isoinertial lifting), psychosocial factors (mood, sleep, and life control), and cognitive function (measures of attention, concentration, and mental flexibility) were also collected. RESULTS: Subjects randomized to PENS plus PT displayed significant reductions in pain intensity measures from pre- to posttreatment ( $P < .001$ ), but the sham PENS plus PT group did not ( $P = .94$ ). These pain reduction effects were maintained at 3-month follow-up. Similarly, significant reductions in pain-related disability were observed at posttreatment ( $P = .002$ ) for the PENS plus PT group and were maintained at follow-up, but the

sham PENS plus PT group did not show reductions in pain-related disability ( $P = .81$ ). Of the secondary outcome measures, psychosocial function, timed chair rise, and isoinertial lifting endurance also improved significantly at posttreatment for the PENS plus PT group, and their improvement was sustained at 3-month follow-up, but the sham PENS plus PT did not display significant changes on these measures after treatment. CONCLUSION: This preliminary study suggests that PENS may be a promising treatment modality for community-dwelling older adults with CLBP, as demonstrated by reduction in pain intensity and self-reported disability, and improvement in mood, life control, and physical performance. Larger studies with longer duration of follow-up are needed to validate these findings and support the use of PENS in clinical practice.

Wetzel, F. T., and T. A. McNally. "Treatment of chronic discogenic low back pain with intradiskal electrothermal therapy." *Journal of the American Academy of Orthopaedic Surgeons*. 11, no. 1(2003): 6-11 UI 12699367.

The treatment of chronic, nonradicular, discogenic low back pain remains controversial. The posterior annulus fibrosus appears to be a potential site of origin of the pain, which is mediated by nociceptors in the inner layers of the annulus. Diagnosis requires a thorough history, physical examination, and imaging protocol; provocative diskography is key. Nonsurgical treatment options have been limited to physical therapy and pharmacotherapy. Success rates of spinal fusion range from 39% to 96%. Reported therapeutic success rates of intradiskal electrothermal therapy, a possible intermediate treatment, range from 60% to 80%. Despite this apparent therapeutic effect, however, a more precise quantification of clinical benefits remains to be proved in randomized prospective trials.

White, I. R., et al. "Adjusting treatment comparisons to account for non-randomized interventions: an example from an angina trial." *Statistics in Medicine*. 22, no. 5(2003): 781-93 UI 12587105.

In a clinical trial where some subjects receive one or more non-randomized interventions during follow-up, primary interest is in the effect of the overall treatment strategies as implemented, but it may also be of interest to adjust treatment comparisons for non-randomized interventions. We consider non-randomized interventions, especially surgical procedures, which only occur when the outcome would otherwise have been poor. Focusing on an outcome measured repeatedly over time, we describe the variety of questions that may be addressed by an adjusted analysis. The adjusted analyses involve new outcome variables defined in terms of the observed outcomes and the history of non-randomized intervention. We also show how to check the assumption that the outcome would otherwise have been poor, and how to do a sensitivity analysis. We apply these methods to a clinical trial comparing initial angioplasty with medical management in patients with angina. We find that the initial benefit of a single angioplasty in reducing angina tends to disappear with time, but a policy of additional interventions as required yields a benefit that is maintained over 4 years. Such methods may be of interest to many pragmatic randomized trials in which the effects of the initial randomized treatments and the effects of the overall treatment strategies as implemented are both of interest. Copyright 2003 John Wiley & Sons, Ltd.

Wilson, V. "Guidelines for use of the MS26 daily rate syringe driver in the community." *British Journal of Community Nursing*. 5, no. 4(2000): 162-8 UI 12411857.

Many patients cared for in the community have complex care and treatment needs and syringe drivers are commonly used to administer a range of drugs to patients at home. However, serious problems have been associated with this route of administration. In Scotland between 1989 and 1994 there were 23 incidents including 4 fatalities associated with the use of small volume syringe pumps reported to the Common Services Agency supplies division (Scottish Office Home and Health Department (SOHHD), 1995). The four fatalities were attributed to over-infusion (SOHHD, 1995). In those fatal inadvertent incidents no fault was found with the infusion device, suggesting that an inadvertent error had been made by attendants in setting up or in using the device, or that some form of tampering had taken place. The Department of Health issued a hazard warning in 1994 (DoH, 1994) about confusion between the two Sims Graseby syringe drivers the MS16A and the MS26. This article outlines guidance on the use of the Sims Graseby MS26 in the community. Community nurses have a vital role to play in management of

syringe drivers, and it is through increased awareness of correct procedures that incidents and fatalities will be avoided. [References: 32]

Yamazaki, K., et al. "Postoperative outcome of lumbar spinal canal stenosis after fenestration: correlation with changes in intradural and extradural tube on magnetic resonance imaging." *Journal of Orthopaedic Surgery*. 10, no. 2(2002): 136-43 UI 12493925.

PURPOSE: To evaluate the serial changes in clinical results and the intradural and extradural spaces on magnetic resonance imaging (MRI) after bilateral fenestration in 48 patients with lumbar spinal canal stenosis (LSCS). METHODS: A prospective interventional study was performed to study the clinical results, magnetic resonance imaging scans among patients who were followed up for more than 3 years. RESULTS: All patients showed improvement in clinical symptoms after operation, but clinical results deteriorated in 9 (19%) patients. Postoperative MRI scans showed that poor dural tube expansion, grouping of the cauda equina, and decrease in the cross-sectional area of the dural tube were factors associated with poor outcomes. The cross-sectional area of the dural tube and images of the cauda equina observed by MRI, before and after fenestration and during follow-up, reflected changes in clinical symptoms involving decompressed segments. CONCLUSION: Serial changes in the cross-sectional area of the dural tube and images of the cauda equina observed preoperatively, postoperatively, and on follow-up by MRI may be useful when evaluating patients' condition before and after operation. It is also useful for predicting outcomes.

Zaslowski, C. J., et al. "The impact of site specificity and needle manipulation on changes to pain pressure threshold following manual acupuncture: a controlled study." *Complementary Therapies in Medicine*. 11, no. 1(2003): 11-21 UI 12667970.

OBJECTIVES: To investigate the contribution of two principal features that underlie traditional Chinese acupuncture: site specificity and application of needle manipulation. DESIGN: Thirteen volunteers completed a randomised, dual blind (subject and assessor) repeated measures study involving five interventions. Pressure pain threshold (PPT) was measured with an algometer, before and after intervention at 10 sites (acupoints and nonacupoints) across the body. INTERVENTIONS: Deep needling, with or without manual needle rotation, applied to the acupoint Large Intestine 4 (LI4) or to a nonacupoint located on the medial side of the second metacarpal. Inactive laser to LI4 was used as a control. All interventions were administered for 21 min. MAIN OUTCOME MEASURES: Percentage change in PPT from preintervention baseline at the 10 sites during the 18 min immediately following intervention. RESULTS: Statistically significant increases from preintervention PPT means were obtained at all 10 sites following needling of LI4 with manipulation compared with one site after needling LI4 without manipulation. Needling the nonacupoint led to statistically significant increases at six sites when manipulation was present compared with none in the absence of manipulation. No significant changes in mean PPT followed inactive laser. Needling LI4 with manipulation produced mean increases that were statistically significantly greater than those for the other interventions with one exception: needling the nonacupoint with manipulation was as effective as needling LI4 with manipulation at one measurement site only. CONCLUSIONS: Both manipulation and site of needling contributed significantly to the elevation of PPT following acupuncture. Distribution of effects on PPT did not support either neural segmental or Traditional Chinese Medicine channel theories. Psychological and physiological nonspecific effects appeared to play a minimal role in changes to PPT.

Zeppetella, G., and M. D. Ribeiro. "Pharmacotherapy of cancer-related episodic pain." *Expert Opinion on Pharmacotherapy*. 4, no. 4(2003): 493-502 UI 12667112.

Episodic pain is a transient increase in pain intensity over background pain. Episodic pain occurs commonly in cancer patients; it is a heterogeneous phenomenon that is incapacitating, debilitating and can have a significant impact on quality of life. Episodic pain can be difficult to manage; it is often unpredictable, typically of fast onset, of short duration and feels similar to background pain except that it may be more severe. The successful management of episodic pain can only be achieved following a thorough assessment. The subsequent management usually involves both pharmacological and non-pharmacological strategies integrated into the overall care and appropriate for the stage of the patient's disease. Pharmacological management includes the implementation of primary therapies (e.g., chemotherapy for the underlying aetiology of the pain, optimising the scheduled medication (e.g., analgesics and adjuvant analgesics) and

specific pharmacological interventions for the episodic pain (e.g., rescue medication).  
[References: 79]