

# Pain Management Review Part 8

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### Objectives

- Study the efficacy of pre- and postoperative oral dextromethorphan for reduction of intra- and 24-hour postoperative morphine consumption for transabdominal hysterectomy.
- Study a case of iatrogenic axillary neuropathy after intramuscular injection of the deltoid muscle.
- Evaluate the use of intrathecal analgesia for postoperative pain relief after radical prostatectomy.
- Report the use of an intravenous nalbuphine and naloxone mixture as an analgesic agent following gynecologic surgery.
- Comment on gabapentin and an opioid combination versus opioid alone for the management of neuropathic cancer pain.
- Discuss whether transdermal fentanyl produces local peripheral opioid analgesia at the site of its application for 2 hours.
- Study the use of topical lidocaine in silver sulfadiazine in cancer patients with painful skin lesions.
- Discuss continuous intrathecal morphine infusion in patients with vertebral fractures due to osteoporosis.
- Discuss the topic of pain among the oldest old in community and institutional settings.
- Discuss the possibility of a coexistence of the fibromyalgia syndrome and the overactive bladder syndrome.

### **Efficacy of pre- and postoperative oral dextromethorphan for reduction of intra- and 24-hour postoperative morphine consumption for transabdominal hysterectomy.**

*Chau-In W et al*

**Journal:** Pain Med (85):462-467, 2007. 25 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

Postoperative pain may arise through the activation of *N*-methyl-D-aspartic acid (NMDA) receptors. Specifically, the excitatory amino acid glutamate binds to the NMDA receptor, localized in the dorsal horn of the spinal cord. If this binding were suppressed or inhibited, the neuropathically, inflammatory and

surgically induced pain might be reduced.

The clinical evaluation of NMDA receptor antagonists in acute pain has included magnesium, ketamine, and dextromethorphan (DEX). As studies of magnesium offer little promise and the serious psychotropic side effects of ketamine are unattractive, DEX was made the focus of this study. DEX is the d-isomer of the codeine analog levorphanol but has one-tenth the affinity of codeine for the mu-opioid receptor. DEX attenuates acute pain with few side effects, has no classical analgesic properties, little sedative activity, and does not inhibit ciliary function. In the adult antitussive dose range (to 120 mg/day), it has no analgesic or sedative effects, nor is it a respiratory depressant.

The elimination half-life of DEX is approximately 3.5 hours. DEX metabolizes in the liver, where it is rapidly transformed to dextrorphan, a more potent NMDA antagonist. After a single oral dose, the peak concentrations of DEX in plasma were achieved within 2-3 hours, while the peak concentrations of dextrorphan in plasma were achieved in 1.5 hours.

Dextromethorphan is a noncompetitive antagonist at the NMDA receptor level and this property has led to its experimental use in a number of clinical areas, such as acute and chronic pain and neuroprotection after brain injury. The aim of this prospective, randomized, double-blind trial was to determine whether the addition of DEX would reduce postoperative pain and decrease opioid consumption.

After exclusions, 100 female participants, scheduled for transabdominal hysterectomy, were divided into 2 groups, either the DEX group (group DEX) or placebo (group P). Group DEX was given 30 mg of oral DEX with their medication and then, after surgery, 30 mg DEX orally 3 times over the next day. The P group was given lactose tablets following the same schedule.

General anesthesia was used for all patients, using 70% N<sub>2</sub>O, isoflurane, and vecuronium. In the postanesthesia care unit (PACU), morphine IV was titrated to the patient's comfort, in 2-mg increments every 3 minutes or as required. IV morphine was also available via a PCA pump. Twenty-four hours later, the morphine pump was removed and replaced with on-demand oral analgesia.

Patients were assessed during a postoperative visit by an anesthetic nurse. Total postoperative morphine consumption, including that received in the PACU, was recorded, and nurses assessed sedation using a 4-point scale (0 = alert; 3 = unarousable). Assessment of postoperative pain at rest was made at the PACU and at 6 and 24 hours using a 100-mm visual analogue scale (VAS; 0 = no pain).

Ninety-eight patients completed the study. The time to first dose of IV morphine was significantly different between the groups where the DEX group was almost twice as long as the placebo group. Intraoperative and PACU morphine consumption was lower in the DEX group; however, in the first 24 hours, the mean morphine use was greater in the DEX group than in the P group. There was no difference in sedation

scoring between the groups.

This study showed a statistically significant improvement in analgesic effect only during the intraoperative period and in the PACU when using low doses of dextromethorphan before and after surgery in patients undergoing abdominal hysterectomy.

### **iatrogenic axillary neuropathy after intramuscular injection of the deltoid muscle.**

*Davidson LT et al*

**Journal:** Am J Phys Med Rehabil 86(6):507-511, 2007. 9 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

Injections into and about the shoulder complex are performed routinely for the purposes of vaccination, intramuscular (IM) medication administration, deltoid trigger-point injections, and intra-articular and bursa steroid injections. Although such injections are considered routine office procedures, there is increased risk of neurovascular injury if they are performed incorrectly. Anatomic structures at greatest risk include the axillary nerve, subdeltoid bursa, and circumflex humeral artery.

This article presents a case of IM injection performed in the deltoid that resulted in clinically significant axillary nerve injury. The goal of this report is to review the salient anatomy of the axillary nerve, including its branching patterns, and to alert clinicians of a potential complication that may result from injection into the shoulder.

A previously healthy 26-yr-old man presented for an electrodiagnostic evaluation with complaints of right shoulder abduction weakness. He reported receiving an IM injection of an antiemetic in the deltoid muscle 4 weeks before the present visit, with an immediate, sharp, electric-like sensation radiating down to his fingers. Physical examination revealed obvious atrophy of the right deltoid compared with the left. Nerve-conduction studies revealed an axillary nerve compound motor action potential amplitude that was approximately 1/10 that of the unaffected side.

The authors postulate that the neurological deficits were attributable to mechanical trauma to the anterior branch of the axillary nerve. Other causes of axillary nerve injury exist, including chemically induced nerve injury, cervical radiculopathy, brachial plexopathy or, more remotely, a postinjection case of brachial plexitis with selective involvement of the axillary nerve.

The anatomy of the course of the axillary nerve as it innervates the deltoid muscle is reviewed in this article with a diagrammatic illustration. Antiemetics most commonly administered via IM injection are prochlorperazine, promethazine, and dimenhydrinate. Animal studies led the authors to conclude that

prochlorperazine should be used for IM injections because it is less neurotoxic when injected intraneurally.

The recommended site for deltoid muscle injection is located 2 fingerbreadths below the acromion process, with the injection performed at a 90° angle. The Advisory Committee on Immunization Practices in 1990 recommended the use of a 1- to 1.5-inch needle for injection into the deltoid. In clinical practice, the standard needle used is 16 mm (5/8 inches).

Further consideration should be given to the depth of injection. Needle length should be based on the patient's sex, weight, and body habitus, with the guidelines shown in a table in the article. Sufficient knowledge of the anatomy of the axillary artery and surrounding structures in the shoulder may minimize the risk of iatrogenic injury, thus maximizing patient safety and injection efficacy.

### **Intrathecal analgesia for postoperative pain relief after radical prostatectomy.**

*Ene KW et al*

**Journal:** Acute Pain 9(2):65-70, 2007. 19 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

Continuous epidural analgesia (EDA) is a common way of treating postoperative pain in radical prostatectomy (RP) patients, while its management by administering a single dose of intrathecal opioids has failed to gain wide popularity. Compared to EDA, intrathecal analgesia (ITA) benefits from its convenience of administration, simplicity of postoperative management, and a potential reduction in costs. The purpose of this exploratory, pilot study was to evaluate ITA in terms of pain experience, side effects, and need for rescue analgesics during treatment of postoperative pain for 3 days after RP.

A total of 50 patients received ITA for their postoperative pain relief. Pain was measured with a 0-100 mm visual analogue scale (VAS). Shortly before general anesthesia was instituted, all patients received lumbar intrathecal morphine 0.1-0.2 mg and hyperbaric bupivacaine 10 mg. General anesthesia ensued, using fentanyl, a non-depolarizing muscle relaxant, oxygen/nitrous oxide and isoflurane.

After remaining in the post anesthesia care unit (PACU) for a minimum of 6 hours after administration of the intrathecal drug, patients were returned to the ward and a checklist for basic and specific information was noted. This included hemodynamics and bleeding, specific VAS, sedation score (0-3), respiratory rate and motor function every hour, and nausea and vomiting (PONV) and pruritus every 4 hours. The recommended pain level was VAS less than 30-40. All patients received paracetamol starting preoperatively and continued postoperatively until the patient's discharge. If not contraindicated, diclofenac (3 × 50 mg) was given orally, when the surgeon considered the patient to have stable coagulation conditions. Additional doses of ketobemidone (equianalgesic morphine type of analgesia) were given

systemically p.r.n. intravenously until pain was relieved.

In addition, information was obtained from the patient concerning "worst pain" during the last 24 hours at rest and/or during physical activity at 24, 48, and 72 hours, and the absence or presence of PONV.

Four hours after surgery no patient reported severe pain, while 9 reported moderate pain and 41 no or mild pain. Pain subsequently increased and within the first 24 postoperative hours, 28 patients experienced moderate/severe pain. On day 2, 14 patients and on day 3, 9 patients reported moderate/severe pain. There were 17 patients who reported mild pain during the whole 3-day study period. Although the patients receiving the larger preoperative morphine dose had lower pain scores at 4 hours postoperatively, the difference was not significant. Seven patients did not require any supplemental opioids postoperatively, while 43 patients received ketobemidone at some point.

Forty-four percent of the patients suffered from PONV. This symptom decreased slightly over time and antiemetics were needed by 5 patients on day 1 and by 1 patient on days 2 and 3. There was a correlation between "worst pain" and PONV on days 2 and 3, but no statistical relationship was found between opioid consumption and PONV. Pruritus was reported by 1 patient, requiring no medication.

In conclusion, observing the deficient effect in some patients on day 1, ITA, with morphine and bupivacaine given before surgery was found, in general, to be a commendable method for pain relief in patients undergoing RP. The insufficiency on day 1 might be improved by increasing the dose of intrathecal morphine and additionally by modifying the conservative view that systemic opioids to patients with intrathecal morphine must be avoided unless supervised in high dependency areas like the ICU or PACU. With well-educated and dedicated nursing staff combined with regular surveillance according to guidelines, patients with ITA could be managed safely on regular hospital wards when systemic opioids are carefully titrated to an adequate analgesic effect.

#### **Open-label exploration of an intravenous nalbuphine and naloxone mixture as an analgesic agent following gynecologic surgery.**

*Gordon AT et al*

**Journal:** Pain Med 8(6):525-530, 2007. 20 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

The search for potent perioperative analgesia with fewer mu-opioid side effects has led to significant interest in mixed receptor agonists/antagonist mixtures. The experimental combination (nalbuphine and naloxone mixture--

NNM) in this report is a fixed ratio of the kappa-opioid agonist and weak mu-agonist nalbuphine (Nab) and mu-antagonist naloxone (Nlx). This article describes two preliminary case series designed to explore the use of intravenous NNM Nlx as a perioperative analgesic agent for women undergoing gynecologic surgery.

The series was an open-label clinical investigation using a fixed-dose ratio of 12.5:1 Nab/Nlx. For both series, a standard anesthetic regimen was followed that included antiemetic agents prior to surgery. Patients received their first dose of NNM postoperatively once stable and awake, and recording moderate postoperative pain ( $\geq 2$  on Categorical Pain Intensity Scale). Efficacy was assessed by Verbal Pain Scale (VPS, 0-10) every 5-10 minutes for the first 30 minutes, and then 30-60 minutes thereafter.

The first series (A) was a dose-ranging investigation conducted in patients undergoing elective total abdominal hysterectomy or myomectomy. A total of 12 patients were enrolled, with 6 in a lower (2.5 mg/0.2 mg) and 6 in a higher dose group (5 mg/0.4 mg). Intraoperatively, the anesthesiologist administered between 250 and 900 mcg of fentanyl for pain control. Each patient received a standardized initial infusion of NNM (slow intravenous push over 2 minutes) for pain once awake and stable. If insufficient, a second dose was administered.

To remove the possibility of mu-opioid reversal of the Nlx and NNM by intraoperative fentanyl, a possible hindrance to clinical efficacy, a limited pilot study was undertaken for case series B, in which 5 mg/0.4 mg NNM (rather than fentanyl) was administered preoperatively.

In case series A, all patients required rescue medications within 50 minutes after the initial postoperative dose. Each patient received a total of two postoperative doses of NNM, with patient pretreatment VPS scores ranging between 5 and 10. No adverse events were related to the administration of the drug. VPS scores at the time of rescue ranged between 7 and 10, and rescue medication produced analgesia in all patients.

In case series B, 4 patients were enrolled, with each patient receiving a single intravenous dose 10 minutes prior to induction of anesthesia and a single dose after surgery, once awake and having postoperative pain. Two of the 4 patients reported reduced pain following NNM administration and completed the 3-hour postoperative observation without requiring any rescue medication. The other two subjects required rescue medication. One case had an episode of bradycardia, which was successfully treated with glycopyrrolate.

Given the small number of patients in both series and the limited patient response, further research is needed to establish the clinical usefulness of a fixed-ratio formulation of nalbuphine and naloxone for treatment of postoperative pain.

### **Gabapentin and an opioid combination versus opioid alone for the management of neuropathic cancer pain: a randomized open trial.**

*Keskinbora K et al*

**Journal:** J Pain Symptom Manage 34(2):183-189, 2007. 31 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

Neuropathic cancer pain appears to be less opioid responsive and represents a major problem in cancer pain

management. Anticonvulsants are commonly used as adjuvant analgesia drugs in neuropathic pain, and among these, gabapentin has been shown to be effective. Few reports on the use of gabapentin as an adjuvant analgesic added to opioid therapy in neuropathic cancer pain were found, and the aim of this randomized, single center, open study was to compare the efficacy and safety of gabapentin and an opioid combination, with opioid monotherapy in neuropathic cancer pain management.

Sixty-three patients with an unrelieved neuropathic component of cancer pain completed the study. The subjects were randomly divided into 2 groups: gabapentin as an adjuvant to ongoing opioid treatment (GO Group) or opioid treatment alone (OO Group). In the GO Group, the initial gabapentin dose was 100 mg 3 times daily for patients >60 years of age and 300 mg 3 times daily for patients <60 years old. These doses were reached incrementally to avoid side effects. Above these initial doses, the gabapentin dose was titrated up to 3,600 mg/day according to pain response, while keeping the opioid dose constant.

Following randomization, patients were seen every 4 days throughout the study, and assessments were done on the day of randomization and on the 4th and 13th days of the study. The primary efficacy variable was the change in pain intensity (burning and shooting pain) as measured by an 11 point NRS (0 = no pain). Secondary efficacy variables were as follows: presence or absence of allodynia, consumption of study drugs, and need for rescue analgesic. Side effects were also evaluated.

The gabapentin with opioid in combined regimens reduced burning and paroxysmal shooting pain, attenuated allodynia earlier, and provided a means to remain at the same WHO treatment ladder step. Aside from 1 patient in group GO, who was withdrawn due to respiratory depression, no side effects requiring discontinuation of treatment were seen in either of the groups throughout the study. The rate of side effects in the GO group was significantly lower than in the OO group.

#### **Effect of local administration of transdermal fentanyl on peripheral opioid analgesia.**

*Worrich S et al*

**Journal:** Pain Medicine 8(1):41-47, 2007. 30 References

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Abstracted by J. Joyce, who has nothing to disclose.

Peripheral analgesia mediated through mu-opioid receptors has been demonstrated in a variety of clinical settings, with the preponderance of data generated with arthroscopic procedures. In the periphery, opioids inhibit the depolarization of polymodal nociceptors and hinder the release of pro-inflammatory

neuropeptides that mediate neurogenic vasodilatation and plasma extravasation. Transdermal formulations offer the potential of eliciting analgesia via mu-opioid receptors because of direct accumulation of drug in the skin layers in the area of the applied skin patch. Should transdermal fentanyl produce analgesia via peripheral opioid receptors, this could potentially be of benefit to pain patients.

The purpose of this study was to determine whether transdermal fentanyl produces local peripheral opioid analgesia at the site of its application for 2 hours. Patch application time of 2 hours was chosen to insure no significant systemic absorption to avoid confounding any pain relief attained with possible central rather than peripheral effects. Minimal effective concentration (MEC) is the concentration of a drug required to produce a given effect, in this case analgesia. MEC for transdermal fentanyl can vary based on clinical situation as well as psychological, physiological, anatomical, biochemical, and pharmacological factors. MEC of fentanyl has been found to vary from 0.2 to 8.0 ng/mL for postoperative pain control. A MEC of 0.2 ng/mL was chosen as a conservative value in this opioid-naïve population in a nonsurgical setting.

The results obtained in this study showed no statistically significant analgesic effects due to transdermal fentanyl at the site of patch application for pain thresholds, supra-threshold pain intensity, or the area of secondary hyperalgesia. It is possible that the negative results of this study do not reflect the absence of functionally relevant mu-opioid receptors in the skin, but rather the inability for the transdermally administered fentanyl to interact with mu-opioid receptors in the experimental model. It is possible that with longer patch application time, but still less than the time required for systemic absorption, the drug could accumulate in the skin and act peripherally if the local application remained a longer period of time but still less than the 3-4 hours required to achieve clinically significant plasma concentrations. Because the study population was opioid naïve, the lowest dose of fentanyl was selected; therefore, it is possible that a higher dose formulation might produce a significant analgesic effect.

This study found that transdermal fentanyl (25 mcg/hr for 2 hr) does not produce a statistically significant local peripheral opioid analgesia at the site of patch application

#### **Topical lidocaine in silver sulfadiazine cream on painful, cancer, or treatment-related skin lesions.**

*Meeuse JJ et al*

**Journal:** J Pain Symptom Manage 34(3):223-225, 2007. 4 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

This letter to the editor concerns 5 cases of malignant or treatment-related skin lesions, commonly found in cancer populations. In each case, the use of topical lidocaine in a vehicle of silver sulfadiazine cream resulted in decreased pain and improvement in quality of life.



These cases included a 24-year-old man with cancer of the right testicle and metastases in his lymph nodes, lungs, liver, and brain. His right testicle became painful and scrotal swelling developed a decubitus of the overlying skin. Systemic opioids were avoided because of concern that their side effects might interfere with the follow-up of the intracerebral pathology. Treatment was initiated with lidocaine 5% in silver sulfadiazine cream. After one day he was able to sit and tolerated washing of the scrotum. His lidocaine applications were continued for 6 weeks with no side effects observed.

The next 4 cases were of 66-, 78-, 77-, and 43-year old women being treated for vulvar cancer complicated by pain, edema, and moist desquamation, with lidocaine 2%-5% in silver sulfadiazine cream. All were improved with no untoward side effects.

A dose-effect relationship was suggested in one patient, as increasing the lidocaine concentration to 5% reduced the need for systemic therapy. In one case, pain could not be controlled with lidocaine 3% in silver sulfadiazine in combination with systemic pain therapy. Possibly increasing the lidocaine dose may have been effective.

Although lidocaine is a local anesthetic with a low toxic potential, toxic and hypersensitivity reactions can occur. Central nervous system toxicity is related to serum concentrations, with symptoms ranging from light-headedness and tinnitus to convulsions and coma. Cardiovascular depression only occurs at very high serum concentrations (in dogs at a mean lidocaine serum level of 113.2 µg/mL). The lidocaine serum levels in one patient receiving topical 5% lidocaine on disrupted skin remained 38-fold lower than these cardiovascular toxic levels.

Lidocaine in silver sulfadiazine is contraindicated in sulfa allergy and, as lidocaine is metabolized in the liver, caution is warranted in compromised liver function and combined usage of drugs interacting with the CYP1A2 and CYP3A4 enzymes.

### **Continuous intrathecal morphine infusion in patients with vertebral fractures due to osteoporosis.**

*Shaladi A et al*

**Journal:** Clin J Pain 23(6):511-517, 2007. 51 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

According to the World Health Organization, osteoporosis is a reduction of the bone density mass corresponding to a loss of 25% to 40% compared with the average value of the bone density of a young healthy individual. Bone deterioration begins at the age of 20 and continues steadily at a speed of up to 7% every 10 years in females and less than 2% per decade in males. Vertebral fracture is the most common consequence of osteoporosis, with an incidence of 5% in females at age 50 with a frequency of 0.5% per

year, 25% in females 80 years old with a frequency of 3% per year, and 64.3% in both sexes at the age of 90.

Vertebral fractures are mostly localized at the thoracic level around T8 and at the thoraco-lumbar junction T12-L1. Repeated vertebral fractures are responsible for chronic pain. This pain is not only from bone origin but is due to stretching of muscles, tendons, and ligaments and due to arthritis of the articular surfaces. These repeated fractures are also associated with increased general morbidity, decrease in psychomotor ability, disability, and loss of personal autonomy.

Although analgesics are used in treatment of this type of pain, many side effects may be prohibitive, especially in the elderly. The present article presents data on the treatment of 24 patients (19 females), average age 74.3 years, suffering advanced osteoporosis without recent vertebral fracture, who were not coping well with opioids and other conservative pain therapy. A trial temporary morphine delivery catheter was initiated and required a > 50 % improvement in the VAS prior to permanent placement.

At first visit, all patients underwent MRI. History and physical examinations were performed to correlate location of pain with the level of fractures. At this visit the authors administered a VAS and Quality of Life Questionnaire of the European Foundation for Osteoporosis (QUALEFFO), which is specific for quality of life (QOL) issues in this group of patients.

One week after the initial visit, a trial of intrathecal morphine was initiated. The continuous, initial infusion dose of morphine was 0.5 to 1 mg in 24 hours via an externalized catheter. During the first 3 days of this trial, the oral administration of morphine was gradually tapered and the infusion dose was increased by 1 mg/day until the VAS was reduced by at least 50%. On the sixth day, all patients returned for follow-up. Data collected during the trial included morphine dosing and the development of any side effects.

In those patients having successfully passed the intrathecal trial, once the pump was implanted, the initial morphine daily dose was reduced by 20% when compared with the dose at trial and QUALEFFO, and side effects and morphine doses were reviewed and recorded. After 3-5 days, the morphine dose was increased to the dose at the end of the trial. At 1 year from pump implantation, data from the VAS, QUALEFFO, and morphine dosing were collected.

The mean VAS value before trial was 8.7 cm. After pump implant, the mean VAS score was 3.6 cm and after 1 year, it was 1.9 cm. QUALEFFO before trial was 114.7. After pump implantation the mean QUALEFFO score had fallen to 92.1, and after 1 year, the score fell to 79.1. Side effects reported during the trial included vomiting in 5 patients and itching in 3 patients, which were treated successfully with antiemetics and antihistamines, respectively. There was a wound infection in 1 case requiring antibiotic therapy. In 2 patients, catheter dislocation necessitated reinsertion of the catheter. No patients required additional oral/transdermal doses of analgesics.

### **Pain among the oldest old in community and institutional settings.**

*Zyczkowska J et al*

**Journal:** Pain 129(1-2):167-176, 2007. 55 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

At present, there is still only a limited knowledge regarding the effects of normal or pathological aging on pain, and there is a particular dearth of knowledge regarding pain in the oldest old (those 100 years of age or older). The aim of this study was to analyze the prevalence and correlates of assessed pain among the Canadian elderly in home care and institutional settings, with a particular focus on the patterns of pain in individuals of advanced age. Census-level data from the Resident Assessment Instrument 2.0 (RAI 2.0) used in Ontario Complex Continuing Care Hospitals/Units and from the Resident Assessment Instrument -- Home Care (RAI-HC) used in Ontario Community Care Access Centres were examined in order to compare age differences in the experience of and factors associated with pain.

RAI-HC is the mandatory assessment system used by Ontario case managers in all 42 Community Care Access Centres (CCACs) with all home care clients who are expected to be on service for 60 days or more. In addition, the RAI 2.0 has been the mandatory assessment instrument for all 134 Complex Continuing Care (CCC) hospitals/units in Ontario since 1996.

For the present study, elderly people were selected from two different care settings. The Home Care (HC) group consisted of all long-stay clients aged 65 years and older ( $n = 114,499$ ), and the CCC group consisted of all patients 65 years and older in CCC hospitals/units ( $n = 78,659$ ). Records for these individuals were examined for reports of pain intensity and frequency, mental status, activities of daily living, depression, and the CHES scale (changes in health, end-stage disease, and signs and symptoms).

Conclusions reached in this study are that advanced age is an independent factor that predicts lower levels of pain in persons in community and institutional settings. This relationship is independent of disease diagnoses, cognitive impairment, various health conditions, and analgesia use. Further research is required to determine whether the less frequent reporting of pain among the oldest old is indeed equivalent to a lack of suffering and perceived pain or whether some alternative explanations account for these differences

### **The coexistence of the fibromyalgia syndrome and the overactive bladder syndrome.**

*Soyupek F et al*

**Journal:** J Pain Symptom Manage 15(3):31-37, 2007. 43 References

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**Faculty Disclosure:** Abstracted by T. Newitt, who has nothing to disclose.

The International Continence Society defines overactive bladder syndrome (OBS) as urgency, with or without urge incontinence, usually associated with frequency and nocturia. The symptoms must be exhibited in the absence of the local pathologic or metabolic factors such as urinary tract infection, malignancy, bladder calculi, interstitial cystitis, diabetes mellitus, polydipsia, diuretics, and pregnancy. The fibromyalgia syndrome (FMS) is a non-inflammatory rheumatic disorder with diffuse musculoskeletal pain, fatigue, multiple tender points, and is predominantly found in women.

Neurohormonal abnormalities and neurotransmitters play an important role in etiopathogenesis of FMS and OBS such as serotonin, norepinephrine, NMDA receptor, leukotriene B<sub>4</sub>, dopamine, endothelin-1 and tachykinins. Because of this overlap, the authors hypothesized that there might be a coexistence between FMS and OBS, and in this study they aimed to investigate the association between the 2 disorders.

Two groups were studied: (1) subjects with OBS (the OBS group) and (2) the healthy normal control group (HNC group) recruited from the hospital staff and other volunteers. The OBS group was divided into 2 sub-groups according to the coexistence of FMS: the OBS group and the OBS + FMS group. All participants were examined for FMS by the same physiatrist. All participants filled in the self-administered questionnaires that included their demographic and medical histories. They also completed the Beck depression scale.

Forty subjects (35 females) diagnosed with OBS and 40 HNC subjects (37 females) were included in this study. FMS was found in 12 of the 40 subjects in the OBS group and in 2 of the 40 HNCs. There was not any significant difference in Beck depression scale scores between the OBS and OBS + FMS subgroups. There was a positive correlation between the duration of OBS and FMS.

The serotonergic system has an effect on bladder contractility. Alterations in serotonergic neurotransmission may play a role in etiology of OBS. A reduction in serotonin causing a net decrease in inhibition leads to unstable contraction. There are data suggesting a generalized defect in serotonin synthesis and metabolism in FMS. There are other possible pathophysiological mechanisms of OBS and FMS.

The depression scores of OBS subjects were higher than the HNCs. The alternation of serotonin function is associated with depression and overactive bladder. Overactive bladder syndrome can lead to depression and low self-esteem because social life is disrupted by the overactive bladder.

FMS should be kept in mind when dealing with OBS, especially in female patients.