

ON~Q Pain Relief System® in Elective Abdominal Hysterectomy Surgery, A Pilot Clinical Outcomes Study Evaluating Length of Stay, Postoperative Pain, Narcotic Analgesia Use and the Impact on Costs and Adverse Effects

Stephen E. Zimberg, MD, MSHA, Guillermo W. Davila, MD, Jeffrey C. Seiler, MD, and Minda Neimark, MD

Introduction

There are approximately 600,000 hysterectomies performed in the United States each year which has been a fairly stable number since the early 1990s and it remains the most common non pregnancy related surgical procedure performed. It is estimated that one in three American women will have this procedure by the age of 60.

This is a randomized pilot study looking at the safety and efficacy of using an elastomeric infusion system, in abdominal hysterectomy patients being operated on for non-malignant conditions. The hypothesis was that use of this wound infusion technique would result in decreased complication rate, decreased narcotic use, decreased length of stay, decreased cost, better patient satisfaction and faster return to pre-morbid status.

Methods

Thirty women without malignant disease who were scheduled to undergo elective Abdominal Hysterectomy were randomized to 0.5% ropivacaine, 0.5% bupivacaine, or 2% lidocaine delivered by an elastomeric pump to the surgical site as postoperative pain management. The Soaker® catheter was placed below the rectus fascia and above a closed peritoneum. A 10 cc bolus of the assigned local anesthetic was injected through the Soaker catheter prior to hooking up the pump. The system delivered 2 ml/h of anesthetic. Postoperatively, the subjects received oral pain medication and were discharged from the hospital in 24 +/- 2 hours. Pain questionnaires were administered prior to pain medication and each morning for 1 week following discharge. Serum sampling for local anesthetic levels was obtained at 1, 6, 12, 24, 48, and 56 hours postoperatively. The pumps were removed at 48 hours. Outcomes measures included hospital costs, length of stay, narcotic use, serum anesthetic levels, and adverse effects were assessed.

Discussion

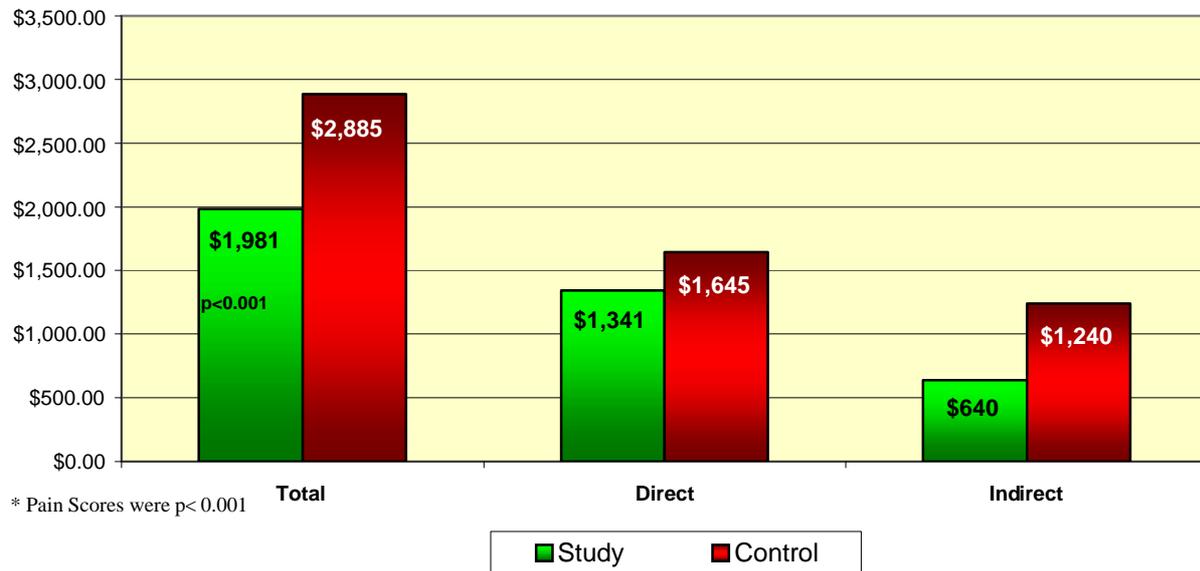
This pilot study shows the viability of elastomeric analgesic infusion pumps and in particular, for treatment of postoperative pain. The pain assessment profile shows this technique to be a valuable adjunct, **completely eliminating the need for narcotics in 33.3% of patients and greatly reducing the need for narcotics in the remaining patients.** This reduction/elimination of narcotics results in faster return of bowel function and well as eliminating the complications of PCA or epidural analgesia.

Mean gross charges decreased by 5% in the study group compared to controls (\$13,784 vs \$14,548 respectively) **even with the cost of the pump included in the study patient charges. Actual costs to the hospital decreased by 30%** (see chart figure1) for the pilot study patients when compared to control patients who underwent hysterectomy without the elastomeric pump over the study period. The reduced length of stay and reduced nursing interventions on the floor contributed not only to the cost savings but also to greater patient safety and satisfaction.

The reported serum blood levels of bupivacaine, lidocaine, and ropivacaine are well below toxic levels, giving a high degree of safety. No postoperative infections were noted and no readmissions were required for this pilot population making use of the LA Pain Management System, a safe and perhaps preferred alternative for women requiring abdominal gynecologic procedures

The ability to transform abdominal hysterectomy procedures into an overnight stay and to provide good to superior post operative pain relief, makes this technique equal to the perceived advantages of transvaginal hysterectomy or laparoscopic assisted transvaginal hysterectomy.

Figure 1 Chart **Mean Costs**



RESULTS

- **Total Direct Hospital Costs reduced by 31%**
- **50% of patients are discharged in less than 24 hours**
- **Mean length of stay 26.2 hours**
- **43% of patients required no narcotics after PACU**
- **No Adverse Effects**
- **No Infections**
- **Levels less than 1/3 toxicity**
- **51% reduction in indirect Nursing cost**

Presented at the 50th Annual Clinical Meeting of The American College of Obstetricians and Gynecologists May 6th, 2002