Effectiveness of Hypnosis for Post-operative Pain Management of Minimally Invasive Thorascopic Repair of Excavatum: Retrospective Analysis

Renee C.B. Manworren, PhD, APRN, BC, PCNS-BC1,2, Eric Girard, MD1,2, Ana Maria Verissimo, MD1,2, Sandra Riccardino, RN1, Kimberly A. Ruscher, MD1,3, Richard Weiss, MD1,3, Donald Hight, MD1,3

1 Connecticut Children’s Medical Center, Hartford, CT
2 Department of Pediatrics, University of Connecticut School of Medicine, Farmington, CT
3 University of Connecticut School of Nursing, Storrs, CT

Background

Pectus excavatum is the most common congenital deformity of the anterior chest wall, occurring in approximately 0.1% of live births.7 Regardless of the surgical approach, correction has been correlated with positive quality of life outcomes and improvement of body image 8,9,10. The minimally invasive thoracoscopic repair (Nuss procedure) results in a smaller scar, but significant pain from the subternal correction. Studies comparing approaches to managing the post-operative pain of this procedure have included systemic opioids by patient-controlled analgesia (PCA), nonsteroidal anti-inflammatory drugs (NSAIDs), and regional analgesia.11,12 An integrative medicine approach to post-surgical pain management may be more effective than traditional analgesics alone. Integrative medicine is defined as a “relationship based care that combines conventional medicine and complementary therapies for which there is some high quality scientific evidence of safety and effectiveness to promote health for the whole person in context of his or her family and community.” (www.nccam.nih.gov).

The aim of this retrospective study was to analyze our initial experience of using hypnosis in the management of children’s post-operative pain after a variety of surgeries.8,9,10. One study suggests preemptive hypnosis was associated with a shorter hospital stay after Nuss procedure.12 However, patients in this study who received pre-surgical hypnosis training received PCA supplemented with intravenous (IV) and oral opioids, whereas patients in the non-hypnosis group received regional analgesia supplemented with IV and oral opioids.

At Connecticut Children’s Medical Center, Nuss procedure post-operative pain management plan is standardized to include epidural analgesia with local anesthetic alone, IV PCA opioids, IV NSAIDs and eventual transition to oral opioids and NSAIDs. Patients are invited to learn self-hypnosis prior to Nuss procedure.

Study Aim

The aim of this retrospective study was to analyze our initial experience of using hypnosis as a patient chosen adjunct for pain management after Nuss procedure. Post-operative pain management outcomes were compared between adolescents who did and did not receive hypnosis training before undergoing the procedure.

Primary outcomes: pain control as measured by
• self-reported pain scores (0-10 NRS)
• IV opioid use
Secondary outcomes:
• length of stay
• opioid-related side effects: nausea, vomiting, constipation, pruritis, sedation, need for supplemental oxygen, respiratory distress, urinary retention, and mental status changes/hallucinations.

Methods

DESIGN: Retrospective chart review of all patients 10 to 21 years of age who received Nuss procedure at Connecticut Children’s Medical Center in 2011. Hypnosis training was provided by a single integrative medicine physician.

Patients received IV hydromorphone, morphine, or fentanyl by PCA. Adjustments were made to analgesic orders to facilitate pain relief in all patients. There was variability in whether patients received scheduled or PRN IV NSAIDS. Some patients also received muscle relaxants.

SAMPLE: Children with the cognitive ability to report pain using a 0 to 10 numeric pain rating scale (NRS) and were treated with our standard post-operative pain management regimen.

Results

In 2011, 8 of 22 patients who underwent Nuss procedure received pre-surgical self-hypnosis training. The sample was predominantly male and Caucasian. There was no difference in age, weight, sex, race/ethnicity, Haller’s index, surgeon, number of rods or footplates inserted, chest tube insertion, or prevalence of complications between the two groups.

Patients who received self-hypnosis training had statistically significantly improved pain control.

The difference in maximum pain intensity scores between the two groups over the course of the first four days of their hospital stays was not statistically significant (Z = 0.140, p = 0.889) (Figure 1). However, patients who had received pre-surgical self-hypnosis training reported statistically significantly lower mean pain intensity over the first five days of their hospital stay (Z = 2.04, p = 0.041) but not for their first four days (Z = 1.612, p = 0.107) (Figure 2).

Conclusions

• Patients who received pre-surgical hypnosis training used less milligrams of morphine equivalents/hour over the course of the first 4 days after Nuss procedure.
• While there was a difference in the groups mean pain intensity scores over the course of the first 5 days after surgery, there was no difference over the course of the first 4 days after surgery and there was no difference in maximum pain scores for each group over the course of 4 or 5 days after surgery.

The results of this study suggest that hypnosis provides an effective opioid-sparing adjunctive therapy for the management of moderate to severe pediatric post-operative pain after Nuss procedure. More research is needed to determine the effectiveness of hypnosis for symptom management after painful pediatric surgical procedures.

References