The Effectiveness of Hypnosis and Suggestive Techniques in Reducing Postoperative Side Effects in Children

Rachel Jones, Sahana Pentyala, Srinivas Pentyala

Abstract
The use of suggestive techniques including hypnosis for surgery has been studied in adults, but research on the same is sparse in children. Available literature pertaining to hypnosis for surgery in children was reviewed to analyze its benefit in the postoperative period following surgery. Suggestive techniques were found to be useful in reducing postoperative pain, nausea and vomiting and also hospital stay. Hypnosis was found to be as useful as midazolam in reducing postoperative anxiety. This review presents an update on the practice of utilizing hypnosis for surgery in children and its effectiveness in postoperative recovery.

Keywords
Hypnosis; Suggestive Techniques; Children; Postoperative Recovery

Introduction
Suggestive techniques including hypnosis have been used to alleviate surgical side effects [1]. Hypnosis is described as an artificially induced trancelike state, in which the subject is highly susceptible to suggestion, oblivious to all else, and responds readily to the commands of the hypnotist [2]. Hypnosis was used as a therapy throughout many millennia. Since ancient times as old as Mesopotamian, Mayan and Indus Valley civilizations, hypnosis was seen as a cure to many physical and mental illness. Franz Anton Mesmer, a Viennese physician played a key role in the development of hypnosis for modern medical use [3]. While in the early 19th century, several hundred surgical interventions were described with hypnosis as the sole anesthetic, and it was prejudicially abandoned with the onset of the anesthetic age [4]. More recently however, the value of hypnosis has been increasingly recognized in medicine, especially in adults [5, 6]. Hypnosis could also be used on pediatric patients and yield effective results, as children have a vast imagination and lack full cognitive development, thereby making them more susceptible for suggestions [7]. However, literature on the effectiveness of suggestive techniques in children is scant.

Postoperative Pain
An exhaustive review of available literature investigating the effectiveness of hypnosis for reducing postoperative pain in children identified a few studies.
Hypnosis was found to be consistently more effective than control conditions in alleviating discomfort associated with bone marrow aspirations, lumbar punctures, voiding cystourethrogram and the Nuss procedure [8]. In a randomized controlled trial conducted by Lambert in 52 children that are matched for sex, age and diagnosis, the experimental group was subjected to guided imagery including suggestions. Significantly lower postoperative pain ratings were recorded in this group [9]. It has been suggested that hypno-anesthesia techniques like the Magic glove, could be used as an adjunct during the pre-surgical anesthetic consultation to reduce discomfort and chronic pain [10]. When hypnosis was compared with non-hypnotic suggestive techniques in a group of 27 children during bone marrow aspiration, and in a group of 22 children during lumbar punctures, hypnosis was found to be significantly more effective in reducing procedural pain [11].

**Postoperative Anxiety**

In a randomized controlled trial of children, the effectiveness of hypnosis was tested against the effectiveness of midazolam. Fifty children, aged two to eleven years of age were separated into two groups. One group received midazolam while the other group received hypnosis as premedication. Preoperative anxiety was evaluated using the Modified Yale Preoperative Anxiety Scale and postoperative behavioral disorders were evaluated using the Post Hospitalization Behavioral Questionnaire. Hypnosis was found to be as effective as midazolam in children scheduled for surgery, and the number of children anxious during induction of anesthesia was considerably less in the hypnotic group [12]. Other studies have also shown the effectiveness of hypnosis, guided imagery and relaxation techniques to decrease postoperative anxiety [9, 10].

**Postoperative Hospital Stay**

In a study of 10 patients undergoing the Nuss procedure, the non-hypnotic group was managed with an epidural catheter and analgesia was supplemented with intravenous or oral narcotics. The hypnotic group was prepared by teaching them self-hypnosis for postoperative pain and allowed patient controlled analgesia. The patients in the hypnosis group spent an average of 2.8 days in the hospital compared with 4.6 days in the non-hypnosis group (p<0.01). However, the number of patients in this study was small and the possibility of bias cannot be excluded [13]. Lambert’s randomized controlled study involving 52 patients demonstrated a significantly shorter stay at the hospital for the experimental group receiving guided imagery, compared to the control group [9]. It has also been suggested that hypno-anesthesia techniques can result in shorter hospital stays [10].

**Nausea and Vomiting**

A case report of a six-year old patient with esophageal stricture, secondary to neonatal repair of esophageal atresia, required treatment consisting of six to eight weekly esophageal dilations by bougienage. The patient soon developed anticipatory vomiting and nausea which was eliminated using hypnotherapy administered over a period of four sessions preoperatively [14]. A randomized blinded controlled trial in 67 children undergoing tonsillectomy and adenoidectomy examining the effect of intraoperative positive therapeutic suggestion demonstrated no significant effect on vomiting or on nausea in the immediate postoperative period [15].

**Discussion**

The increasing interest in recent years for suggestive techniques including hypnosis for alleviating postoperative symptoms parallel the recent rapid expansion of other non-conventional alternative therapies including yoga, acupuncture, herbal medicine, etc. Alternate therapies are being increasingly investigated, tested and analyzed and these therapies are found to be effective for recovery from disease and decreasing pain [16]. Studies indicate the possible long term effects of severe postoperative pain in children [17]. The potential of suggestive techniques to facilitate a smooth recovery and decrease pain after surgery makes it attractive for adoption as part of standard surgical practice. Several studies have raised concerns with the use of general anesthetics at a young age causing negative effects in children such as neurocognitive and behavioral deficits [18]. If suggestive techniques could be proven to have a positive widespread effect, they could pave the way for reducing the dose of anesthetics in children during surgery and thereby reduce the incidence of adverse effects. Parent and pediatric patient perceptions concerning the effectiveness of suggestive techniques will vary depending on cultural, religious and personal beliefs. It has been suggested that patients’ beliefs regarding a positive outcome could trigger a placebo response. This is turn could cause a favorable outcome [19]. It is also important that the parents have positive expectations of
these suggestive techniques to prevent early termination of treatment [16]. Children who had hypnosis before their surgery were found to be less distressed post-op [20]. With the many potential effects of hypnosis, there are also some adverse effects. Complications can occur if hypnosis has been administered by an inexperienced person, when a symptom was removed by a direct command, or following inadvertent post-hypnotic suggestion. Common short term adverse effects include: fatigue, fainting, dizziness, anxiety, nausea and confusion. There are also long term adverse effects that are very critical to health. These effects include stupor, seizures, spontaneous dissociative episodes and resurrection of memories of previous trauma [7].

Conclusion

Hypnosis is becoming more popular in surgical settings. It is seen as an alternative option to avoid or to enhance anesthesia. Studies performed so far, revealed that pain was consistently found to be lower for those pediatric patients who underwent hypnosis as a suggestive technique to alleviate pain. Hypnosis also seems to be as effective as midazolam for reducing postoperative anxiety and appears to be beneficial in reducing hospitalization time and does not reduce postoperative nausea and vomiting. More studies are required to further elaborate this promising concept of the effectiveness of hypnosis on postoperative outcomes.

References


