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AN EXTENSION STUDY USING HYPNOTIC SUGGESTION AS AN ADJUNCT TO IV SEDATION

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Disclosure

☐ I have an ongoing financial relationship with Transparentcorp, a manufacturer of biofeedback and AVS equipment which I use and develop.
☐ I receive no financial incentive for any presentation given at this conference.
☐ I do mention my use of Transparentcorp software in my practice

Overview

☐ Study originally published in the International Journal of Clinical and Experimental Hypnosis (IJCEH) in 2010 (Mackey, 2010).

☐ The original study was limited to the researchers' locus of practice in several suburbs of Philadelphia, PA.
Background Information

- Hypnotic interventions have been used for problems of gagging, pain control, excessive salivation and bruxism (Heap & Aravind, 2002; Kroger, 1977; Leitch et al., 2004).
- Use of hypnotic trance has been shown valuable during surgical procedures reducing recovery time (Evans & Richardson, 1988), and accelerating wound healing (Ginandes, Brooks, Sando, Jones & Aker, 2003).

- Dyas (2001) reported improved sedation experience and less Fentanyl usage during surgery. Dyas further concluded that hypnosis was a viable addition to IV sedation in the removal of impacted Third Molars (Dyas, 2001).
- Historically, an anesthetist, to alleviate intraoperative discomfort and anxiety historically has given anesthesia in the hospital setting for third molar removal (Mackey 2010; Miller, 1986).

- The use of Propofol, Fentanyl and Midazolam is perhaps the most common medications used for outpatient dental anesthesia (Abeles, Sequeira, Swenson, Bisaccia & Scarborough, 1999; Dyas, 2001, Leitch et al., 2004; Mackey 2010).
- A randomized, controlled study by Ginandes et al., (2003), showed post-operative healing to be greatest in the hypnosis group ($p < .001$) as compared to two other non-hypnotic groups.
Hypothesis #1

- There will be a significant difference in the amount of IV Propofol used for patients receiving hypnotic suggestion in conjunction with IV sedation versus those patients receiving IV sedation alone for removal of impacted third molars.

Hypothesis #2

- There will be a significant difference in the postoperative pain level for patients receiving intravenous sedation alone versus those receiving hypnotic suggestion along with intravenous sedation.

Hypothesis #3

- There will be a significant difference in the use of post-operative analgesic use for patients receiving hypnotic suggestion in conjunction with intravenous sedation versus those patients receiving chemical anesthesia alone.
Design

- Replicated (June 2013) using an additional 43 randomly assigned subjects to two groups.
- The additional 43 subjects were from a large general dentistry practice in a rural community in PA.
- The original study involved 100 subjects who were randomly assigned into an experimental group (n=46) and a control group (n=54).

Methodology

- The experimental group listened (via headphones) to music and a prerecorded hypnotic script from IV insertion to IV removal and the control group listened (via headphones) to music only from IV insertion to IV removal.

Methodology

- The original study measured the amounts of intraoperative Propofol usage, postoperative pain ratings on a numerical rating scale and the amounts of post-operative prescription pain reliever usage.
Subject Selection

- Patients between ages 18-25 having surgical removal of impacted third molars with IV sedation
- Convenience sample from outpatient dental facilities in suburban Philadelphia, PA
- Random assignment of subjects to either experimental or control group
- Twenty-five additional subjects were randomly assigned into the experimental group and 18 were randomly assigned to the control group, increasing the group sizes to 71 in the experimental group and 72 in the control group.

Methodology: Inclusion/Exclusion Criteria

- Age range of 18 – 25 years
- Body weight of 50-100 kg
- No history of psychopathology (DSM-IV-TR)
- No history of previous hypnotic experience
- Clients taking any medication affecting heart rate or blood pressure were excluded

Ethical Assurances

- Informed Consent
  - Voluntary participation
  - Confidentiality of data collected
- Preoperative patient education
- IRB Approval
Methodology: Sample

- Control Group
  - Received standard IV sedation with music played through headphones worn by the subject throughout the procedure
- Treatment Group
  - Received standard IV sedation along with hypnotic induction and therapeutic suggestion along with music played through headphones worn by subject throughout the procedure

Methodology: Procedure

- After informed consent, IV catheter inserted along with headphones placed
- Subjects received either music and hypnotic suggestion (treatment group) or just music alone (control group) via CD
- All participants received the standard dose of IV anesthetic

Methodology: Measurement

- Preoperatively
  - Heart rate, blood pressure and oxygen saturation
- Intraoperatively
  - Heart rate, blood pressure and oxygen saturation
  - Identified clients who received additional IV Propofol
Methodology: Measurement

- Postoperatively
  - Postoperative pain using numeric rating scale (1-10)
  - Amount of postoperative pain medication taken

Data Processing

- MANOVA to evaluate statistical significance of the mean group differences on three dependent variables
  - Additional IV Propofol intraoperatively
    - Based on physiologic parameters
  - Postoperative pain level
    - Based on numeric rating scale
  - Amount of postoperative prescription pain medication

Results
Data Processing…..

- Multivariate tests of main effects on all dependent measures, $p < .001$
- Wilks's $\Lambda = .79$, $F (3,140) = 7.64$, $p < .01$
- Multivariate $H_2$ based on Wilks's $\Lambda$ was .21 indicating 21% of the multivariate of the dependent variables is associated with the group factor.

### Dependent Variables

<table>
<thead>
<tr>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intraoperative Pain</td>
<td>117.85</td>
</tr>
<tr>
<td>Postoperative Pain</td>
<td>2.57</td>
</tr>
<tr>
<td>Postoperative Medication</td>
<td>2.95</td>
</tr>
</tbody>
</table>

Methodological Limitations

- Use of convenience sample
- Use of self-reporting for pain level
- Use of follow-up phone call to gather post operative data
Implications of Findings

- Less intraoperative anesthetic is safer for patients
- This information increases existing anesthesia knowledge base and assists anesthesia providers to administer less intraoperative anesthetic, producing the desired effect
- Cost reduction

Implications of Findings

- Decrease in patient postoperative pain levels
- Decrease in patient’s postoperative narcotic usage

Indications for Further Research

- Use of a third “no additional treatment” group
- Use of a larger sample to increase generalizability
- Use of different types of pre-recorded hypnotic induction and therapeutic suggestion
- Use of additional outpatient surgical settings
Discussion

- Using hypnotic suggestion as an adjunct to IV sedation lowers intraoperative anesthetic amounts
- This provides a safer anesthetic delivery for the provider and patient
- Lowers cost

Discussion

- Use of prerecorded material provides a repeatable generalized hypnotic induction
- This is effective for most patients
- Perhaps different types of inductions and other therapeutic suggestions may affect outcome data

Discussion

- This type of hypnotic intervention should be utilized in other outpatient surgical settings.
- So many other types of surgery is now being done outpatient and this may be beneficial in other medical and surgical procedures.
Questions

References

- On handout

- Thank You!
References

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