Intra Operative Suggestions Reduce Incidences of Post hysterectomy Emesis

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Abstract
The influence of therapeutic intraoperative auditory suggestions on the incidence and severity of emetic episodes was investigated in 50 adults ASA I and II patients undergoing elective abdominal hysterectomy. The patients were randomly divided into two groups, each consisting of 25 patients. In group I, a blank tape was played and in group II, positive suggestion was played via headphones throughout the anaesthetic period. It was observed that there was statistically significant difference (P<0.05) between the incidence of vomiting in group 1 (60%) and group II (36%). The number of vomiting episodes per patient in group I was 3.1±1.2 as compared to 1.7±0.6 in group II. This difference was statistically significant. The patients requiring rescue antiemetic was significantly higher (P<0.05) in group I (66.6%) as compared to group II (22.2%). It is concluded that positive therapeutic suggestion may be considered as an alternative to antiemetic therapy (JPMA 47:202, 1997).

Introduction
Auditory information may be registered, processed or both, in some areas of the anaesthetized brain. Two different kinds of memory during general anaesthesia have been described, explicit (declarative, awareness) and implicit (without conscious orientational recollection of target material). These memory functions have recently been discussed in detail. Many clinical investigators have used implicit memory function to improve post-operative outcome of surgical patients utilizing positive intraoperative suggestions. McLintock et al. reported reduced post-operative morphine requirements, in patients undergoing hysterectomy with suggestion therapy. However, they failed to reduce the incidence of post-operative nausea and vomiting (PONV) in the same study. Some other previous studies have failed to establish a conclusive cause and effect relationship due to absence of control group, lack of standardization of the anaesthetic techniques/variable surgical procedures or non-specific suggestion materials used. Some details regarding these conflicting results have been discussed by Millar. The aim of our study was to investigate the effect of positive therapeutic suggestions on the incidence and severity of emetic episodes in patients undergoing elective abdominal hysterectomy under a standardized anaesthetic technique and strictly precise suggestive material on PONV.

Patients and Methods
Following JIRB approval, 50 ASA I and II patients, age ranging between 40-60 years, posted for elective abdominal hysterectomy were studied. Patients with hearing defects or those with history of antiemetic medication over the last 24 hours were not included. Patients were randomly allocated into one of the two groups, each consisting of 25 patients. Group I (No suggestion) - Blank tape was played throughout the anaesthetic period. Group II (Suggestion) - Positive intra-operative suggestion was played via headphones, throughout the anaesthetic period.
All patients were premedicated with inj. Promethazine 0.5 mg/kg to a maximum of 25 mg and buprenorphine 0.04 mg/kg IM to a maximum of 0.3 mg, 45 minutes before surgery. Anaesthesia was induced with thiopentone sodium 4-5 mg/kg IV and intubated after relaxation with Vecuronium 0.1 mg/kg IV. Anaesthesia was maintained with halothane (titrated between 1-2% to maintain BP±20% of control) in a mixture of 60% N₂O and 40% O₂. Prior to commencement of surgery, walkman headphones were applied. To those in group la blank tape was played throughout the anaesthetic period. Patients in group H were played a tape suggesting that they would experience no sickness at the postoperative period. The tape consisted of a male voice speaking in patients dialect. It lasted for approximately 15 minutes and played repeatedly throughout the surgery. The English version of the tape was “You have been anaesthetized smoothly. Your operation is progressing well, both the surgeons and anaesthesiologist are satisfied with your progress and pleased. We are confident that you would do very well following surgery and in particular you will not feel sick. The injection you were given as premedication contained a drug that prevents nausea and vomiting. This along with the tape you are hearing and the tranquillity that you feel on awakening will result in no sickness at all. I repeat you will have no sickness in the 24 hours following your operation”.

Monitoring during anaesthesia consisted of pulse rate, non-invasive blood pressure, the grade of muscle paralysis with peripheral nerve stimulator, End tidal CO₂ with a capnometer and arterial O₂ saturation with a pulse-oximeter.

Each patient was carefully observed for the appearance of clinical sign suggestive of light anaesthesia. At the end of the operation, neuromuscular block was reversed with a mixture of atropine 0.02 mg/kg and neostigmine 0.04 mg/kg. Postoperative pain was relieved with diclofenac sodium 1 mg/kg to a maximum of 75 mg IM, on demand. Metoclopramide 0.25 mg/kg, to a maximum of 10 mg was administered as rescue antiemetic when the patient had vomiting episodes for two or more times. Postoperative follow-up at 24 hours was carried out by a resident who did not know which tape was used. The duration of anaesthesia, the total volume of fluid replacement up to first 24 hours postoperatively, the number of vomiting episodes and the number of patients receiving rescue antiemetic were recorded.

Retching was considered as vomiting in this study. Severity of vomiting was determined by calculating the number of vomiting episodes per patient. In addition patients were questioned about the recollection of intraoperative events, or having heard a tape recorded message. Statistical analysis was performed using the SPSS statistical package with the X², Mann-Whitney U test and Students “t” test, p <0.05 was considered as significant.

Results

There was no significant difference between the groups with respect to age, weight and duration of anaesthesia (Table I).
Fluid requirements in the first 24 hours postoperatively, in group I was more than in group II but this did not achieve statistical significance. No patients on direct questioning revealed awareness for preoperative events or could recall the tape recorded message (Table I). The frequency of vomiting in group II(suggestion) was 36% as compared to 60% in group I. Furthermore, there was significantly less number of vomiting episodes per patient in group II (1.7±0.6) than in group I (3.1±1.2). Only 22.2% (2 out of 9) of the patients who vomited in group II required rescue antiemetic as compared to 66.5% (10 out of 15) of the patients in group I. These results were statistically significant (Table II).

**Table I. Demographic perioperative data.**

<table>
<thead>
<tr>
<th></th>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>49.3±6.3</td>
<td>53.1±5.4</td>
</tr>
<tr>
<td>Weight in Kg</td>
<td>52.4±4.2</td>
<td>55.3±3.7</td>
</tr>
<tr>
<td>Duration of anaesthesia in minutes</td>
<td>117.9±15.3</td>
<td>125.6±13.7</td>
</tr>
<tr>
<td>Fluids required/kg in 24 hours in ml</td>
<td>59.3±13.2</td>
<td>50.7±11.5</td>
</tr>
<tr>
<td>No. of patients re-calling of tape</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

**Table II. Incidence and severity of nausea and vomiting and requirements of rescue antiemetic.**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Emetic incidence</th>
<th>Rescue antiemetic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>(%)</td>
</tr>
<tr>
<td>Group I</td>
<td>15</td>
<td>(60)*</td>
</tr>
<tr>
<td>no suggestion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td>9</td>
<td>(36)</td>
</tr>
<tr>
<td>(suggestion)</td>
<td></td>
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*P<0.05

**Discussion**

In assessing the effects of positive suggestions it is important that suggestions should be targeted specifically at the intended effects. The study by McLintocketal⁹ was on the effects of positive suggestions on post-operative analgesic requirements. The tape played to one group of patients contained the message suggestion “you feel warm and comfortable, calm and relaxed”. Any pain that you feel after the operation will not concern you”. The reported 23% decrease in postoperative morphine consumption in the group who received the suggestion compared to those who were played...
the blank tape. They also reported that the incidence of PONV at 50% in both groups. As the tape did not specially mention nausea or vomiting it was expected that the general positive suggestions would have reduced the feeling of nausea, it did not. More recently therapeutic suggestions to relieve PONV have been reported without success by van der Laan et al\textsuperscript{14} also. The therapeutic suggestions in this study were also non-specific and did not convey the message that patients would not be sick after the surgery though messages were in affirmative tone. They were only meant to relax patients and make them feel secure. Also in the van der Laan\textsuperscript{14} study either Peter Pan or Robinson Crusoe stories were played along with therapeutic suggestion tapes. The processing this irrelevant information, might have distracted or perplexed therapeutic suggestions. The results of this study imply that intraoperative suggestion during anaesthesia may significantly reduce the incidence and severity of PONY In this study in contrast to the above studies the therapeutic suggestions were not only positive but also specific, emphasizing the value of anaesthetic technique and medication to protect against PONY. These differences in the two studies may account for the discrepancy in the results. Hence previous studies also failed to standardize the anaesthetic technique\textsuperscript{18,19} contained messages relating to numerous variables\textsuperscript{14} and included a wide range of operative procedures\textsuperscript{10-13}. To rectify some of these shortcomings this study had a uniform operative procedure and anaesthetic technique with a tape of single point therapeutic message suggestion. Since no patient could recall the contents of the tape played, it is unlikely that the suggestion was processed consciously. These findings are consistent with earlier reports\textsuperscript{9-13} that a perioperative message could affect the post-operative behaviour without the patient having conscious memory. These results support the belief that there can be an unconscious level of processing of auditory information during general anaesthesia\textsuperscript{12-16}. PONV are among the most common and distressing symptoms after surgery\textsuperscript{20}. Gynaecological patients in particular, have a higher incidence of PONV\textsuperscript{21} and the antiemetic efficacy is often poor\textsuperscript{22}. Moreover, the antiemetic drugs themselves can result in distressing sequelae\textsuperscript{23}. The incidence of PONV following major gynaecological surgery has been reported to be reduced by 41% using metoclopramide 10mg\textsuperscript{24} and by 22% using 8mg tab ondansetron\textsuperscript{25}. In this study incidence was reduced by 24% which is comparable with the pharmacological methods. Therefore, this may be considered as an alternative to antiemetic therapy.

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References