Original Article

Comparative study of morphine and lorazepam as oral premedicants in normal adult patients

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Abstract

Premedication is used to prepare the patient for anaesthesia and to help provide optimal conditions for surgery. Reduction of anxiety, pain and promotion of amnesia are the desired properties of an ideal premedicant. Oral premedication is preferred by the patients over a needle prick and is also easy to administer. Present study was aimed to evaluate two commonly used premedicants Morphine and Lorazepam for their anxiolytic and sedative effects. The study was conducted on total 50 patients belonging to ASA grade I and II of either gender, undergoing elective surgery under general anaesthesia. The patients were randomly divided into 2 groups. Group M received oral dose of 0.1 mg/kg Morphine while Group L received oral dose of 0.05mg/kg Lorazepam at night before surgery and two hour prior to surgery. Ramasy sedation scores were used as a tool of assessment. It was observed that the level of sedation with Morphine was better than that of Lorazepam. However, the scores were satisfactory in both the groups. There were no statistically significance differences in blood pressure and heart rate between two groups. The incidence of PONV was higher with Morphine than that with Lorazepam but the difference was not statistically significant in given oral doses. Based on our observations, we concluded that Morphine can provide better sedation without causing serious adverse effects when given orally in given dose.

Keywords: morphine, lorazepam, oral premedicants.

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INTRODUCTION

Fear of the surgery is common in every person irrespective of age and sex. To make the patient calm and co operative a lot of techniques are used. Among them premedication is an important one. Even though oral premedication has got its own disadvantages like variable absorbtion, bioavailability and unpalatability, it is preferred by the patients and is also easy to administer. Administration of oral premedication two hours before induction was shown to be effective and not associated with regurgitation or aspiration during induction. Norris and Wallace [1] in their study on healthy gynaecological patients concluded that the drug Wy 4036 (Lorazepam) provided adequate pre-operative sedation with minimal side effects over a period of 5 hours after oral administration. Due to significant anterograde and retrograde amnesia produced by Lorazepam, it should prove a useful addition to the drugs available for oral premedication. It has no active metabolites and its half-life is not influenced by patient age. Opioids, paracetamol and non-steroidal anti-inflammatory drugs reduce the required dose of anaesthetic agent, provide analgesia and improve patient comfort. Opioids are the drugs of choice in the presence of acute pain. Recently the interest in oral morphine has resurged. Parenteral opioids have a very important role in anaesthesia for excellent sedation, hypnosis and analgesia. Opioids were and are one of the foremost analgesics used as premedicaments. The aim of the modern day anaesthesia is to make the surgical procedure as pleasant as possible for the patient.

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AIM OF STUDY

To evaluate and compare the sedative effect of drugs Morphine and Lorazepam given as oral premedicants.

MATERIAL AND METHODS

All The patients between 18 to 60 years, belonging to ASA grade I and II of either gender, undergoing elective surgery under general anaesthesia in BVDUMCH, Sangli during the period 1 August to 30 November 2015 were included in the study. After taking informed consent, they were randomly divided into two groups of twenty-five patients each. Group M received. T. Morphine in app dose of (0.1 mg/Kg) while Group L received T. Lorazepam in app dose of (0.05mg/kg). The doses were diluted in 10ml of saline and were administered by a person who was unaware about nature and name of the drug. The observations were made by a person other than the person who administered the drug orally at night before surgery and two hour prior to surgery.

The following patients were excluded from the study

1 History of allergy to study drugs
2 Ischaemic heart disease patient
3 COPD
5 ASA grd III and IV

Statistical Analysis

Analysis was done by using computer statistical Package SPSS version 10.0. For inter group comparison between the group for various parameter students paired "t" test was used. Preoperative Heart rate(HR),Systolic blood pressure(SBP),Diastolic Blood Pressure(DBP) and Respiratory Rate(RR) were noted In the ward at the time of pre anaesthetic Check up (PAC).After one hour of giving drug Ramsay Sedation Score (RSS) was used to assess the level of sedation in the patients.

OBSERVATIONS

Ramsay Sedation score (RSS) One hour after premedication, as well as ten minutes after shifting to pre operative holding area(POHA), lorezepam group showed score of 2 in 24 (96%) patients and 3 in 1 (4%) patient. Morphine group showed a score of 2 in 6 (24%) patients and 3 in 19 (76 %) patients. One hour after drug administration (Table 3), as well as 10 min after shifting patient to POHA,RSS was very highly significant (P = 0.001) in both the groups.

Table 1: The demography of patients like age, sex, height and weight was noted

	Age in yrs	Sex	Height in cm	Weight in Kg
Group M	40±8	14M & 11 F	160±6	55±6
Group L	38±10	18 M & 7F	165±7	58±4

Table 2: Ramsay Sedation score

Clinical Status	Score
Patient anxious,agitated or restless	1
Patient co operative,oriented and tranquil	2
Patient asleep responds to commands only	3
Patient asleep responds to gentle shaking light glabellar tap or loud auditory stimulus	4
Patient asleep,responds to noxious stimuli such as firm nailed pressure	5
Patient asleep,has no response to firm nailed pressure or other noxious stimuli	6

Interpretation [2]

Score of 1: Inadequate sedation
Score of 2-4: Acceptable sedation
Score of 5 or 6: Excessive sedation

Table 3: Inter group comparison at one hour after drug administration and 10 min after shifting to POHA

Group	Mean	SD	t value	P value
RSS 1HR LOR	2.0400	0.2000	7.5070	P= 0.001vhs
MOR	2.7600	0.4359		
RSS 10 Min LOR	2.0400	0.2000	7.5070	P=0.001vhs
MOR	2.7600	0.4359		

RESULTS

Before premedication the two groups did not differ demographically and so were comparable. There were no statistically significance differences in blood pressure and heart rate between two groups. Nausea and vomiting occurred more frequently after Morphine, but there was no statistical significance.

DISCUSSION

Premedication is the administration of medication before anaesthesia. Premedication is used to prepare the patient for anaesthesia and to help provide optimal conditions for surgery. This includes:[3] Reduction of anxiety and pain, promotion of amnesia, reduction of secretions, reduction of postoperative nausea and vomiting, enhancing the hypnotic effects of general anaesthesia and reduction of vagal reflexes to intubation. Premedication is traditionally given intramuscularly but the oral route is preferred for children and those with bleeding disorders. Premedication is usually given 1-3 hours pre-operatively. Topical anaesthetic creams (eg, EMLA®) are often prescribed for children before cannulation. The problem faced with oral premedication is that the peak effect may not be realized before induction and significant and prolonged drug presence may complicate emergence following short surgical procedures. In day-care cases, short-acting benzodiazepines (eg, temazepam) are often preferred. In children, oral antihistamines may be used for sedation. The most effective agents causing amnesia are lorazepam and midazolam. Benzodiazepines are ideal agents to reduce anxiety. They provide anterograde amnesia and light sedation. If given orally 1-2 hours before surgery

they have only a small effect on cardiorespiratory function but large doses can interfere with the speed and quality of recovery. Relieving anxiety and sedation may also be achieved by morphine, pethidine and fentanyl citrate.[4] However, they are less preferred to benzodiazepines because in the absence of pain, some people may experience intense dysphoria. Opioids also cause variable sedation and cardiorespiratory depression. All opioids cause nausea and vomiting and this may outweigh any beneficial effects. Opioids may also precipitate bronchospasm or anaphylaxis. This study was aimed to assess efficacy of oral Morphine in given dose and observe incidence of the known adverse effects. Side reactions as noted for the opioid group in general, including ventilation depression; orthostatic hypotension as well as nausea and vomiting secondary to effects on the chemoreceptor trigger zone (CTZ) or on the vestibular apparatus. When Morphine is given in the dose exceeding 10 mg, Dry mouth (80%), Slurred speech (33%), Dizziness (15%),Nausea (7%) are observed by many researchers. Accordingly, in the absence of preoperative pain there may be no compelling reason to include a narcotic for preoperative anesthetic medication. The dose of Morphine used in our study was well within 7gm. Clearly, the methods of quantifying the effects of premedication still leave much to be desired. While subjective assessment by an observer has stood the test of time where the more potent drugs are involved, the present trend is towards using drugs which relieve anxiety while producing little hypnotic effect. It is in this field that the observer falls short most often. Objective psychological tests have a greater chance of success when it is possible to obtain a baseline over a period of hours or days and where the range of anxiety and sedation does not extend or severe anxiety or deep sedation. In our study, we found that satisfactory level of sedation was achieved with oral morphine which correlates the findings of Simpson *et al* [5] also researched on premedication with controlled release of morphine, where they concluded that patients who received morphine were more sedated than placebo. A P Fisher *et al*[6] did the study with buccal morphine as premedication and compared within tramuscular morphine. Based on the results of their study, it is found that patients had more acceptability to buccal morphine and sedation levels were similar to intramuscular morphine. We have gone a step further proving that oral morphine also has acceptable sedation levels. We found that though sedation level achieved by lorezepam, as well as morphine were acceptable to both the patients and researchers; the sedation levels achieved with morphine were better than lorezepam. Wadhawan *et al*[7] studied the analgesic and sedative effects of oral morphine hydrochloride as a premedicant. Their study showed that morphine can be used as a sole premedicant for routine elective surgeries providing adequate sedation pre operatively. Our results of morphine sedation score go in line with their conclusions. Amnesia lasting 4-8 h occurred in all patients who received lorazepam so that pain and nausea during this period were not recalled, but no patient who received morphine experienced amnesia. Ronald Kormac *et al*[8] in their study concluded that lorazepam may be better than Morphine, particularly where sedation without respiratory depression is needed, as in obstetrics, and where amnesia for uncomfortable procedures is required.

CONCLUSION

The results of this study show that oral morphine has an anxiolytic effect, one of the most important effects a premedication should have. Further studies should investigate in which types of surgery the analgesic effect of morphine is peri- and intraoperatively relevant, so that advantages compared to Lorazepam in a higher dosage could be expected. Level of sedation with Morphine was better than that of Lorazepam. The incidence of PONV was higher with Morphine than that with Lorazepam but the difference was not statistically significant in given oral doses.

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