Comparison of ondansetron and metoclopramide in the prevention of nausea, vomiting after laparoscopic cholecystectomy.

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Summary:- Patient undergoing laparoscopic cholecystectomy are at risk of experiencing post operative nausea and vomiting (PONV). The aim of the study was to evaluate and compare the antiemetic efficacy of ondansetron and metoclopramide when given preoperatively for prevention of postoperative nausea and vomiting after laparoscopic cholecystectomy, 7 minutes prior to induction of anaesthesia 60 patients received in a randomized double blind manner injection ondansetron or injection metoclopramide .2mg/kg or placebo(n=10 per group). intravenously patients were then observed for the next 24 hrs after administration. During 24hrs after LC , the percentage of patients free of nausea and vomiting were 58% with ondansetron ,52% with Metoclopramide and 46% with placebo. There were no significant differences between the groups . The overall risk of adverse effects did not differ and(p<0.05) . the result in our study suggests that ondansetron and metoclopramide when given prophylactically. Before induction of balanced general anaesthesia were not significantly effective to central pion in laparoscopic cholecystectomy in comparison to placebo.

Keywords: Antiemetic, Nausea, Vomiting. Pharmacology: Ondansetron, Metoclopramide. Surgery: Laparoscopic cholecystectomy.

I. INTRODUCTION

Postoperative nausea and vomiting are common and disturbing adverse effects after general anaesthesia and surgery. The incidence of pion has been reported high with no antiemetic treatment in patient undergoing LC. PONV causes discomfort to patient and also electrolyte disturbances, regurgitation and risk of aspiration, increased bleeding and wound dehiscence. Patients who suffer from pion require additional care and more attention and material resources leading to higher costs. Hence prophylactic antiemetic therapy is needed for these patients.

Ondansetron administered in small doses before anaesthesia is claimed to be an effective antiemetic, metoclopramide is also reported to reduce the incidence of pion. But it can cause extrapyramidal side effects however it does not have significant undesirable side effect when used for prophylactic purpose.

This study was done in a randomized double blind manner, to compare the antiemetic efficacy of a single intravenous dose of ondansetron or metoclopramide after tracheal extubation in the prevention of PONV after laparoscopic cholecystectomy.

Methods:- Informed consent from each patient was obtained, 60 patient aged 20—60yrs classified as grade I or II were included in the study.

Patients with gastrointestinal disease, previous history of PONV, pregnancy or menstruation were excluded from study even patient who had taken antiemetics with24hrs before operation were excluded from the study.

In operation theatre routine monitoring like spo2, heart rate, ECG, NIBP and ETCO2 were observed through out the study period, no patients received preanesthetic medication. Anesthesia was induced with injection thifentol 18 mgm and injection thiopentone sodium 5mgm/kg intubation was done by injection vecuronium 0.15mg/kg anesthesia was maintained with halothane 1% Nitrous oxide 60% in oxygen with controlled ventilation to maintain end total carbon dioxide between 4.6 and 5.2 kpa. Throughout the procedure muscle relaxation for surgical procedure was provided with additional dose by vecuronium. A nasogastric tube was passed and suction was applied to empty stomach. The nasogastric tube was removed before tracheal extubation.

Abdominal insufflation for the laproscopic procedure was achieved with CO2 and intra — abdominal pressure was maintained between 1.3-1.8 kpa. At the end of surgery the residual neuromuscular blockade was antagonized by injection atropine 0.02 mg/kg injection neostigmine 0.05 mg/kg and extubation was done.

After extubation patients were allocated in equal members into 3 group of 30 patients each to receive either injection ondansetron or injection metoclopramide .2mg/kg or normal saline 2ml as a placebo. Post operative pain relief was provided with injection tramadol when pain score was more than 5(VAS).

All patients
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received supplementation of oxygen 4 lit/min. by face mask in postoperative period for 4 hrs and were
monitored continuously in the recovery room. Episod es of nausea and vomiting were determined and noted in
the first 24 hrs after operation at different intervals 0 - 4 hrs, 4 - 8 hrs, 8 – 16 hrs and 16 – 24 hrs at the end of
each interval an anesthesiologist registered whether vomiting has occurred and asked patient whether they felt
nauseated. The result was scored in same as to Belville et al[1] (0=none, 1=nausea/retching, 2=vomiting).

Side effects were noted during first 2 hrs after surgery in the recovery room. The patients were also
monitored for headache, dizziness, dry mouth/lips, restlessness during next 22 hrs. They were monitored every 2
hrs for the same. Data was analyzed using chi-square test and one way analysis of variance including duncan’s
multiple.

II. RESULTS

The treatment groups were comparable with regards to patient demographics (Table 1). Complete control of established ponv (no emesis) for 24 hrs after administration of study agent was achieved in 58% of patients with ondencetron, 52% of patients with metoclopramide and 46% with placebo. The differences were not significant between the groups.

One Patient in Ondencetron group and one patient in metoclopramide group complained of headache, 6 patients of Ondencetron group and 1 patient of metoclopramide group complained of dizziness. Restlessness was seen in 2 patients in Ondencetron group and one patient in metoclopramide group.

<table>
<thead>
<tr>
<th></th>
<th>Ondansetron (n=30)</th>
<th>Metoclopramide (n=30)</th>
<th>Placebo (n=30)</th>
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<tbody>
<tr>
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<td>41+_14</td>
<td>42+_13</td>
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<tr>
<td>Weight(kg)</td>
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</table>

III. DISCUSSION

Post operative nausea and vomiting is common complication of anesthesia but after laparoscopic
surgery the incidence is high. In this clinical study duration and agents used in anesthesia were similar in both
groups the duration of surgery was also similar in both groups. Nitrous oxide may influence PONV because of
its diffusion in middle ear and bowel which may cause activation of dopaminergic system. Grief et al[24] stated in
his study that patients breathe a higher inspired oxygen concentration during peri operative period and can lower
incidence of PONV. In this study all patients were supplemented with 4 lit of oxygen via face mask post operatively.

For reversal along with neostigmine atropine was used to ameliorate the emetic episodes produced by
neostigmine. Atropine crosses the blood brain barrier and reduce PONV as it is a tertiary amine. The efficacy of
metoclopramide in controlling PONV is controversial. According to previous study prophylactic administration
of metoclopramide 20 mgs i/v could prevent PONV.

The low dose metoclopramide has effect on central dopaminergic action and on 5HT1 receptors[12].
According to current study metoclopramide 0.2mg/kg given intravenously after extubation of trachea was not
so effective as compared to placebo (p > 0.05) Piper et al[15]. Adverse effects during this study were not serious and
overall incidence of adverse events were similar among the 3 study groups.

Neither ondencetron nor metoclopramide in 0.2mg/kg doses were effective in comparison with placebo
in controlling PONV. When used prophylactically in patients posted for laparoscopic cholecystectomy and
undergoing general anesthesia for it.

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