INTRODUCTION
Dexamethasone given during perioperative period has many advantages. It is commonly used for postoperative nausea and vomiting (PONV) prophylaxis. It has similar efficacy to ondansetron, without any sedative side-effects. Many guidelines for prevention of PONV advocate prophylaxis with combination therapy which includes dexamethasone in patients who are at high risk for PONV. The proposed mechanism of antientmetic effect of dexamethasone is related to the inhibition of prostaglandin synthesis and an increase in the release of endorphins, resulting in mood elevation, a sense of “well-being” and appetite stimulation. In order to obtain the highest efficacy against PONV, prophylactic dexamethasone administration should be given during the induction of anaesthesia, because the onset time of dexamethasone on antiemetic effect is approximately 2 hours, and its biological half-life is 36 to 72 hours. Dexamethasone being a potent corticosteroid has anti-inflammatory, immunomodulating, and analgesic effects. It reduces edema, postoperative pain and opioid consumption after surgery. Dexamethasone enhances recovery in the postoperative period by modulating the neuroendocrine and inflammatory stress response induced by surgery. It is also known to reduce pain on Propofol injection. But being a corticosteroid, it can increase blood sugar which may affect wound healing. This effect may be related to an increase in gluconeogenesis and the development of insulin resistance. Acute hyperglycaemia may produce a number of adverse physiologic effects that include osmotic diuresis and hypovolemia, decreased immune function, increased circulating inflammatory cytokine concentrations and adhesion molecule expression, endothelial dysfunction, and electrolyte and acid-base imbalances. Many studies have reported that peri-operative administration of dexamethasone as well surgical stress causes increase in blood glucose concentration, increase is significant when patient received dexamethasone. But there are studies that reports blood glucose concentrations during the first 24 hours after administration of single dose dexamethasone did not differ from those observed after saline administrations. Hence present study is undertaken to determine whether single perioperative dose of dexamethasone (8mg) significantly influences blood glucose concentrations in patients undergoing head and neck surgeries.

MATERIAL AND METHODS
After Institutional Ethical Committee approval, 60 patients belonging to ASA physical status I and II of either sex, aged between 18-65 years, scheduled for elective head and neck surgeries under general anaesthesia were included and patients with FBS > 126 mg/dl, medical comorbidities, ASA physical status III and above, posted for Emergency surgeries were excluded. After pre anaesthetic evaluation and routine investigations patient is taken up for surgery. Intra-operative anaesthetic technique was performed according to standardised institutional protocols. Routine monitoring (ECG, non-invasive blood pressure and pulse oximetry) was performed. Intravenous access was obtained and intravenous fentanyl 2 mcg/kg administered. All the patients received Ringer lactate intravenously intraoperatively and postoperatively.

Patients were randomly assigned to two groups of thirty each by sealed envelope method. Patients in Group 1 received intravenous bolus of 2 ml Dexamethasone (8 mg) and patients in Group 2 received intravenous bolus of 2ml of Normal saline. Intravenous propofol was used as an induction agent, and neuromuscular blockade was achieved using vecuronium. Maintenance of anaesthesia was with isoflurane in oxygen:air mixture. Intravenous Ondansetron 0.1 mg/kg was given to all patients before extubation. Neostigmine and glycopyrrolate were used to reverse neuromuscular blockade at the end of surgery. Patients were extubated after fulfilling the extubation criteria.

The blood glucose measurements were obtained from finger prick capillary blood samples at baseline (T0). Then 60 min (T1), 120 min (T2), 240 min (T3) and 24 hours (T4) after the intravenous injection. Data collected was analysed using Statistical software IBM SPSS 22. For statistical analysis of data and analysed using Glucometer. Data collected was analysed using Statistical software IBM SPSS 22. For statistical analysis of data within the groups paired ‘t’ test was used while for comparison between groups independent ‘t’ test was used.

RESULTS
A total of 60 patients who underwent head and neck procedures were enrolled for the study and were randomly divided into two groups. The demographic profiles of the patients in both groups were comparable with regard to age, body mass index and gender distribution. Patient characteristics are presented in Table 1. Distribution as per ASA status was similar in both groups and mean duration of surgery and anaesthesia was comparable in both groups and statistically non-significant (P > 0.05).

TABLE 1 - COMPARISON BETWEEN THE TWO GROUPS INDEPENDENTLY
Comparison of differences of sugar levels at each time period from baseline in both groups is presented in Table 3. Comparison of differences of sugar levels from baseline T0 is higher in Dexamethasone group at all time periods, but is statistically significantly higher at T1, with a t value of 2.769 and p value of 0.01 and at T4, with a t value of 3.656 and p value of 0.001. Although sugar levels increase in the normal saline group also, the rate of increase is more in the Dexamethasone group and is statistically significantly at T1 and T4.

**DISCUSSION**

In this randomized, double-blinded, placebo-controlled investigation, the effect of intraoperative single dose of Dexamethasone (8mg) on intraoperative and postoperative blood glucose concentrations was examined. A number of preoperative patient variables may influence the incidence of perioperative hyperglycemia, which include age, sex, body weight, and preoperative medications. These risk factors were evenly divided among both groups. Intraoperative anesthetic management was standardized in both groups. In our study we observed a increase in mean blood glucose concentration from baseline T0 at time periods T1, T2, T3, T4 in both the groups. This increase could be attributed to the surgical stress response characterized by changes in serum norepinephrine, epinephrine and cortisol levels. Though blood glucose concentration also increased over time in those who received placebo, but the magnitude of change was less than that observed in those receiving Dexamethasone and is not statistically significant. Increase in mean blood glucose concentration over time from baseline was 6±3.52 for T1, and 7.3±3.45 for T4 in Dexamethasone group when compared to 3.9±2.57 and 4.16±3.24 in normal saline group which was statistically significant. Greater increase in blood glucose concentration in Dexamethasone group may be due to increase in glucogenogenesis and development of insulin resistance induced by it. This increase was seen as early as 4hrs after induction of anesthesia. Our results correlate with the study of Jeffrey et al. who observed that a single dose of Dexamethasone produced significant increase in the blood glucose concentration. In contrast to our study, Murphy et al. observed that blood glucose concentrations during the first 24 hours after administration of single low-dose dexamethasone did not differ from those observed after saline administrations. There was no incidence of clinically significant intraoperative hyperglycemia observed in both the groups in our study.

**CONCLUSION**

Peri-operative administration of single low dose dexamethasone causes statistically significant increase in blood glucose concentration. Thus, the benefits of administering corticosteroids should be weighed against the potential side effects of hyperglycemia especially in patients with impaired glucose tolerance test and diabetis mellitus.

**REFERENCES**


