ABSTRACT

Background: Although sleep apnoea syndrome is known to medical fraternity since 1956 but its importance is not viewed seriously even today, more so in anaesthetic practice. Incidence of Obstructive sleep apnoea syndrome in general population as quoted in the western literature is 1-8%. The use of opioids as premedicants in such patients has been subject of debate based upon few anecdotal case reports where severe respiratory complications have been reported. There has been no systemic scientific study to prove the safety of opioids as premedicants in patients with obstructive sleep apnoea. Therefore this study was designed to evaluate cardio respiratory effects of morphine as premedicant in Indian surgical patients.

Methods: Two thousand and eight hundreds adult surgical patients (N=2800) of either sex referred for any incidental surgery were initially screened for sleep apnoea based upon clinical criteria. Patients found positive (N=392) were subjected further to night polysomnography to arrive at definite diagnosis of obstructive sleep apnoea. The diagnosis of obstructive sleep apnoea was confirmed in One hundred and fifty patients (N=150). A prospective, double blind and randomised study was then designed. Patients were divided randomly into control and study groups. Control group consisting of 50 patients received injection Keterolac 30mg intramuscularly 2 hours before surgery by a resident doctor in the operation theatre. Study group which was divided further into S 1 and S2 group consisting of 50 patients each received injection morphine 0.10 mg/Kg and 0.15mg/Kg respectively by similar route . Patients were monitored by an independent observer for two hours continuously at 10 minutes interval for any cardio respiratory complications. A volunteer faculty member was an independent observer who was blinded to the type of premedication patient received. Monitoring included electrocardiogram, pulse oximetry, non-invasive blood pressure monitor .Results were compared between control and study groups and analysed statistically by applying appropriate tests.

Results: In 2800 surgical patients studied, Sleep apnoea was diagnosed by clinical criteria in 392 patients (14%). The diagnosis of obstructive sleep apnoea was confirmed in 150 patients (5.35%) by night polysomnography that is gold standard for diagnosis of obstructive sleep apnoea. Ten patients (20%) in the Control group exhibited significant heart rate changes to 100/min or above from the baseline value at 45 min (P=0.001), however fall in heart rate or blood pressure changes were not

significant . None of the patient had respiratory depression. In study S1 group change in heart rate to 60/min or below were not significant statistically or clinically as none of the patient required active treatment. Respiratory depression with fall in SaO2 to 88% was seen in 3 patients (6%) between 45-55 min following premedication. None of the patient required active respiratory support except asking the patients to take deep breath. In S2 group, the fall in heart rate to 60/min or below was seen in 8 (16%) of patients at 45 minutes, which was statistically significant (P=0.001) but not clinically significant as no therapeutic intervention was needed. The changes in blood pressure were not significant. Respiratory depression was seen in 4 patients (8%) between 45-55 min following premedication. Out of 4 patients, one patient had respiratory obstruction requiring continuous positive airway pressure therapy. Comparing the results in three groups, there was no statistically significant difference in cardiovascular changes except an increase in heart rate in control group or fall in heart rate in S2 group (p=0.001). No significant difference was seen in cardiac dysrthymias between the three groups. No statistically significant difference was seen between control and study S1 group as regards to respiratory complications. However the difference was clinically significant as none of the patients had respiratory complication in control group. Similarly clinically significant respiratory complications were seen in study S2 group as compared to control group however the difference between S1 and S2 group as regards to cardio respiratory complications was not significant.

Conclusion: Morphine sulphate in dosages of 0.15 mg/kg as premedicants can cause significant respiratory depression in surgical patients suffering from obstructive sleep apnoea. However lesser doses of morphine 0.10 mg/kg can be administered safely in such subset of patients provided premedication is administered in the operation theatre where respiratory resuscitative equipment are readily available and trained personnel are available to recognise cardio-respiratory complications and treat them.