doubt, should they be offered to non-obese diabetics. Laparoscopic Sleeve gastrectomy is a reasonable option for metabolic surgery. More complex procedures have a higher rate of complications and should be done only as a part of controlled clinical trials.

Metabolic surgery is an exciting area, which is likely to have far reaching consequences on the treatment of Type II Diabetes Mellitus in future. However a scientific and cautious approach is required from the surgical community to avoid any mishaps, which could lead to premature death of this extremely promising treatment option.

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Bariatric Surgery for Treatment of Obstructive Sleep Apnea

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***Abstract**: Morbidly obese patients have a high prevalence of obstructive sleep apnea (OSA). Besides excellent weight loss, Bariatric surgery leads to significant impact on OSA. A majority of patients are off the continuous positive pressure (CPAP) machine within few weeks of the surgery. Reduction of fat around the neck leads to decrease in pressure on upper airways and breathing apparatus. Bariatric surgery also leads to improvement of inflammatory status which also is a factor leading to improvement in OSA after surgery. Bariatric surgery should be offered as treatment for OSA in patients with a body mass index (BMI) > 35 Kg/m^2. It can also be considered in patients with BMI between 30-35 Kg/m^2 and OSA.*

INTRODUCTION

Obstructive sleep apnea (OSA) is a disorder of sleep. Itis due to repetitive collapse of the upper airways leading to snoring, fragmented sleep, hypoxemia, hypercapnea, swings in intrathoracic pressure and increased sympathetic activity. Clinically the patient has excessive daytime sleepiness,snoring andpauses and choking spells in breathing during sleep. It is estimated that 2% of middle aged women and 4% of middle aged men suffer from OSA[1]. Prevalence of sleep apnoea increases with increasing body mass index (BMI).A ten percent increase in weight predicts a 6-fold increase in the odds of developing moderate-to-severe OSA[2]. Its incidence in morbidly obese patients has been reported between 38% and 93% and is more frequent in men[3]. As screening for OSA before BS is increasing, more and more patients of OSA are being detected; nevertheless, many researchers believe that it is still a under reported problem[4].Several severe health-related issues have been associated with OSA including those of premature death, sudden death from cardiac causes, traffic accidents, hypertension, ischaemic heart diseases, stroke, type II diabetes, increased neck circumference and visceral adiposity.

Clinical diagnosis of OSA is difficult. Diagnostic tools like the Epworth Sleepiness Score, the Maintenance of Wakefulness Test, the Berlin Questionnaire, Wisconsin Sleep Questionnaire, the STOP and STOP-BANG Questionnaire are commonly used for screening of OSA in bariatric patients. However, accuracy of these questionnaires is inconsistent[5]. The standard method of diagnosing OSA is via polysomnography (PSG). PSG test is done in sleep laboratory and patients need to stay overnight in the laboratory. PSG calculate the number of apnoea (complete cessation of airflow) and hypopnea (50% to 90% decrease in airflow and at least a 4% drop in oxygen saturation for >10 seconds) episodes in each hour of sleep. "Apnea hypopnea index" (AHI) or "respiratory disturbance index" (RDI) are two commonly used parameters to classify the degree of sleep disturbances. In general, an AHI of less than 5 is normal, 5-15 is mild sleep apnoea, >15 is moderate sleep apnoea, and >=30 is severe sleep apnoea[6]. Due to the high prevalence of OSA in bariatric patients and the risk of serious post operative consequences with undiagnosed OSA following bariatric surgery, many centres advocate routine use of pre operative PSG in all prospective bariatric surgery patients[7]. In general, most of the bariatric programmes are not conducting routine preoperative PSG prior to bariatric surgery. It is more of a tailored approach, only the patients with preoperative symptoms of OSA are referred for PSG[8]

BARIATRIC SURGERY AS A TREATMENT OPTION FOR OBSTRUCTIVE SLEEP APNEA

Medical therapy in the form of Positive Airway Pressure (PAP) is the primary treatment modality for OSA. Surgery is an option only in selected group of patients. The primary objectives of surgery in OSA are to increase the airway size and decrease the airway resistance, thereby reducing the work of breathing. The surgical proceduresfor OSA may be site-specific techniques like nasal surgery (septoplasty, turbinectomy), Uvulo-palato-pharyngoplasty or surgery on the base of the tongue. Surgical therapy may also involve upper airway reconstruction like maxilla mandibularadvancement, tracheostomy or non-airwaysurgery like bariatric surgery [9]. Bariatric surgery involves surgery on the gastro intestinal tract in order to create caloric restriction and sometimes mal-absorption in order to induce weight loss. The commonly performed bariatric procedures are adjustable gastric banding (AGB), Roux-en-Y gastric bypass (RYGB), sleeve gastrectomy (SG), and bilio-pancreatic diversion (BPD). These procedures are either restrictive, mal absorptive or both and are done laparoscopically in majority of the patients.

Presently, bariatric surgery is recommended in OSA patients with body mass index (BMI) more than 35kg/m^2 [10,11].

In majority of the patients,bariatric surgery improves or resolves OSA and the other parameters of sleep quality[12-15].

MECHANISM OF OSA IMPROVEMENT FOLLOWING BS

Improvement in OSA following bariatric surgery are due to weight

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