

UNDIAGNOSED SLEEP APNOEA IN A BODYBUILDER PRESENTING FOR EMERGENCY SURGERY; PERIOPERATIVE MANAGEMENT

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INTRODUCTION

Obstructive sleep apnoea (OSA) is a disorder characterised by repetitive episodes of apnoea or reduced inspiratory airflow due to upper airway obstruction during sleep. It is the most common type of sleep-disordered breathing, with prevalence of 1 in 4 males for mild OSA, and 1 in 9 males for moderate OSA.¹ There has been a parallel increase in OSA with the increase in obesity, over the last decade.²⁻⁵

Currently over half of patients with OSA who present for surgery are undiagnosed.^{6,7}

Clinical manifestations of OSA include daytime somnolence and difficulty in concentrating. These symptoms are due to the recurrent collapse of the pharyngeal airway during sleep, leading to intermittent hypercapnia and hypoxemia.

Case

We present the case of a 51 year old male bodybuilder with no past medical history reported, presenting for an emergency appendicectomy. At pre-operative assessment on the ward it transpired that he takes recreational steroids for cosmetic muscle mass effect. He injects for 16 weeks a year in two bursts of 8 weeks. He weighed in at 21 stone (133kg) with a height of 180cm, putting his BMI at 41 (though his lean body mass to fat ratio was significant). His neck circumference was 21 inches.

Pre-operatively, he could be heard snoring from the edge of the bay and had a somnolent episode with an apnoic pause of 6 seconds, witnessed mid consultation. On further questioning he reported that he was frequently tired during the day and that his wife had noted that he stops breathing at night when he snored. He scored 7/8 on Stop Bang scoring (high risk) with a sleep apnoea Clinical Score. (SACS) of 53 (scores over 15 are considered high risk correlating with a higher risk of postoperative oxygen de-saturations).⁸

He was immediately referred for CPAP and an ENT review.

Multiple perioperative and anaesthetic factors are known to exacerbate OSA disease severity and contribute to an increased risk of complications. In the literature, meta-analysis from 2012 demonstrated an increase in the odds of postoperative complications by a factor of two to four.⁹ Adverse events include respiratory complications, postoperative cardiac events, and transfer to the intensive care unit.⁹⁻¹² Subsequently published studies have also noted independent associations between OSA and escalation of care, increased healthcare resource

utilisation, and length of stay.^{13,14} Patients with undiagnosed OSA who are identified as high risk according to screening tools also have a high risk of postoperative complications.^{15,16} It was therefore vital that we made a robust peri-operative plan.

In view of the emergent nature of his operation we planned to proceed, with general anaesthesia, taking care to ensure adequate pre-oxygenation and positioning prior to endotracheal intubation with an HDU bed available postoperatively for commencement of CPAP.

General anaesthetic agents, use of intraoperative opioids and neuromuscular blocking agents are known to reduce upper airway dilator tone and inhibit protective airway reflexes, central ventilatory drive, and arousal mechanisms. These effects mimic sleep and therefore may exacerbate repetitive upper airway collapse in patients with OSA postoperatively and therefore must be used with caution.

In view of this he received a single dose of the muscle relaxant Rocuronium before maintenance on ultra-short acting opiate remifentanyl. He was given IV paracetamol and Parecoxib for analgesia intra-operatively with local anaesthetic infiltration by the surgeons to minimise opiate requirements.

Upper airway narrowing caused by oedema from airway augmentation was a concern so he was treated pre-emptively with dexamethasone and hydrocortisone intra-operatively.

Despite single dose Rocuronium, we selectively reversed him with sugammadex to ensure complete reversal and adequate tidal volumes, as the greatest concern post-operatively was respiratory and pulmonary problems. OSA is known to be associated with increased acute respiratory failure.⁹

Post operatively this patient required continuous positive pressure ventilation on the high dependency unit.

Figure 1. Bodybuilder post appendicectomy

SLEEP APNOEA AND BODYBUILDERS

Sleep apnoea is prevalent in Bodybuilders and can have disastrous consequences if left untreated. Up to 80% of this patient cohort are undiagnosed. Strongman Mike Jenkins (181 Kg) suffered a fatal cardiac arrest aged just 31. He was formally diagnosed with sleep apnoea shortly before his death, but passed away before he was fitted for CPAP. From the medical literature we know that sleep apnoea rates are 4-5 x higher in NFL players than age matches males and as high as 34% among linemen.¹⁷

SUMMARY AND RECOMMENDATIONS

OSA is prevalent and often undiagnosed in the surgical population.^{6,7} Patients with undiagnosed OSA who are identified as high risk according to screening tools also have a high risk of postoperative complications, and thus may benefit from diagnostic evaluation and treatment.^{15,16} Either a presumed or confirmed diagnosis of OSA may change peri-operative and anaesthetic management. Given the increasing prevalence of OSA, the ease of screening, and increased peri-operative risks of OSA, this should be routine during Anaesthetic Assessment. The most critical populations to screen are those with a high

prevalence of OSA, BMI ≥ 30 , hypertensives, type 2 diabetics and patients with a history of difficult intubation or upper airway characteristics that predict a difficult intubation, which should include collar size as an indicator. Bodybuilders and athletes with significant muscle mass, as a population group should be considered high risk and care should be taken to take a full anaesthetics history to allow safe peri-operative planning.

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