



“From the Trough”

Perioperative Interest Group Notes

Based on Cases discussed at the Weekly PIG Clinical Meeting on 15th February 2018. Publication date 26th February 2017.

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The imperfect opinions in these reports are only meant to stimulate discussion:- they should not be considered a definitive statement of appropriate standards of care.

TOPIC 1: High Risk Case – Congestive Cardiac Failure...

Patient was seen on the day prior to surgery for a planned biopsy of a? Malignant tumour in his maxillary sinus. Previously this had been attempted under local anaesthetic but the biopsy was inconclusive. Past history of severe biventricular cardiac failure due to a viral myocarditis in the 1990's. AICD insitu but has never functioned. The CCF has previously caused severe ascites with respiratory compromise, with relief by drainage of ascites. He is on home oxygen. Ejection Fraction 30-35%, but the clinical state is much worse than suggested by this figure. The cardiologist suggests that the patient has a prognosis of 1 to 2 years. Nevertheless the surgeons wanted a clear diagnosis to guide possible radiotherapy, tumour growth would be a miserable outcome. Surgeons considered that given previous failure under local, a GA was needed. After prolonged discussion between anaesthetists, surgeon, and the patient, and review of risks, it was agreed to attempt it again under local anaesthetic. The patient was happy with this.

Next day on arrival in the operating theatre the patient minimised his symptoms but became breathless just moving to the operating table. Given 0.5mg midazolam, fentanyl 10mg (twice) and topical LA. He then tolerated the procedure surprisingly well (despite being required to lie down) for half an hour! As the biopsy proceeded, the clinical impression was formed that the “tumour” was in fact infective (fungal) rather than malignant, encouraging the surgeon to continue surgical exploration. However, after about 25 minutes the patient suddenly developed severe acute pulmonary oedema, and became severely dyspnoeic, even sitting up. Saturations deteriorated to 70%. The patient eventually stabilised with PSV and then transferred to CPAP by mask, thence THRIVE, and eventually recovered to stable preoperative status...(as did the staff).

Notes:- The effectiveness of mask CPAP for acute cardiogenic pulmonary oedema was first demonstrated in a randomised trial by a group at Flinders Medical Centre, Adelaide (Bersten AD et al), although it had been used and discussed at conferences by other Australian workers prior to this. Prior to this, APO was treated by diuresis, morphine and nitrates, based on the belief that APO was primarily due to fluid overload. Initially CPAP was provided by hand pressurising a reservoir bag and circuit; later very large rubber reservoir bags with high fresh gas flows were used; the development of highly responsive flow/pressure controls has enabled the development of highly effective equipment used today.

Bersten AD, Holt AW, Vedig AE, Skowronski GA, Baggoley CJ. Treatment of severe cardiogenic pulmonary edema with continuous positive airway pressure delivered by face mask. *New England Journal of Medicine*. 1991 Dec 26;325(26):1825-30.

See attached notes:- Physiology of non-invasive positive pressure ventilation on heart failure and APO

TOPIC 2: High Risk Case – Chronic Lung Disease

A 76 year old booked for L4/5 decompression laminectomy. History of “asthma/COPD” which causes shortness of breath at 50 metres. FEV1 1.6/2.3L (70%). Saturation 92% on room air. On home oxygen. Patient had multiple admissions to another hospital (CMH) during 2017 and had then been started on home oxygen. Has diabetes and mild alzheimer's.

Periop Clinic referred the patient to respiratory rapid access clinic for optimisation, but the respiratory physicians advise that the admissions during the last year were for cardiogenic pulmonary oedema not for COPD, and that home oxygen is not indicated as long-term therapy. What now?

Discussion:- The patient seems to have “fallen through the cracks” with regard to medical management and communication about her cardiorespiratory pathology. The medical priority is to clarify both the respiratory and cardiac issues, including risk assessment any potential for optimisation. Her back is a lesser priority. This patient may have been prescribed home oxygen inappropriately:- Until recently, this was commonly seen as a therapy that may have ‘made the patient feel better’ and was relatively ‘harmless’:- These ideas are changing.

Referral to the respiratory rapid access clinic is appropriate if there is a respiratory condition that requires rapid assessment and intervention, which is not the case here. In this situation the patient needs a general medical overview including, but not limited to, cardiorespiratory issues. This requires a clear referral letter clarifying exactly what the perioperative issues of concern to the anaesthetist are, rather than just a simple one line request to optimise from a respiratory point of view.

This is a principle that applies in all complex referrals:- *the quality of the consultation will only ever be as good as the quality of the referral.*

BRIEF NOTES:- Changing ideas about Oxygen Therapy – Time for Myth busting?

Conventionally, outpatient oxygen therapy may be used for short-term or long-term.

Short-Term Oxygen Therapy has very limited appropriate indications:- The patient must have an acute but resolving cause of hypoxia, and may be discharged from hospital with oxygen. Such patients are very unusual:- Pragmatically, many patients have been discharged from hospital with short-term therapy as a psychological crutch for both the patient and their family. Long-term oxygen therapy may be given as supportive or symptom-relieving treatment for dyspnoea or hypoxia. Cardiologists and palliative care practitioners may prescribe oxygen without respiratory physician involvement. In prescribing oxygen, the medical team may feel that ‘it doesn’t do any harm’; the patient may report that their symptoms of breathlessness are improved by oxygen therapy. Oximetry readings may provide continuous evidence of low saturations (below 90%), the generally regarded ‘danger point’ for hypoxaemia. This includes a number of myths...

1. Oxygen therapy may not be beneficial. Even for patient who fit the current criteria for long-term oxygen therapy, the Kaplan-Meyer survival lines overlap until nine months. Thus oxygen improves survival only in those patients who fit the criteria AND have longer-term survival. For patients who do not fit the criteria (which is the majority of those who have been receiving long-term oxygen), there is no benefit to survival.
2. Oxygen therapy may adversely affect quality of life, particularly by the psychological impact of being ‘chained’ to equipment, lack of exercise/movement, even around the house, dependency, social isolation, fear of equipment failure or cylinder exhaustion, and (particularly) by falling over oxygen tubing...
3. Symptomatic relief of dyspnoea may not be due to oxygen:- recent research suggests that subjective dyspnoea is relieved by stimulation of the face in the trigeminal areas (i.e. the nose and the cheeks). An oxygen mask, oxygen tubing, light finger-brushing of the cheeks, or a fan blowing on the cheeks all provide symptomatic relief of breathlessness.
4. The oft-quoted ‘danger point’ of 90% oxygen saturation is challenged on multiple grounds:- high-altitude expeditioners acclimatise remarkably quickly to living with saturations in the 70s or lower, but remain reasonably active and functional.

For perioperative patient management purposes, important points to consider are that many patients currently on long-term ‘home oxygen’ may not be gaining benefit from it, and may have been prescribed it inappropriately. The ability of a patient to cough effectively, their exercise tolerance, and the response of oximetry reading to exercise, are the key clinical aspects of assessment.