The Sheppard Oxygen Mask: Efficient oxygen enrichment in the PACU

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Introduction
The Sheppard® Oxygen Mask (SOM) is based on the “T-bag”, whereby a reservoir bag (375ml) is attached to a T-piece. One limb of the T forms the exhalation port (10mm); the other end (15mm) is attached to a face mask. Fresh oxygen enters via a 3mm port opposite the bag. Our purpose was to compare the performance of the Sheppard mask with that of a standard venturi mask.

Methods
63 Patients were studied in the post-anesthesia care unit (PACU) and divided into three groups. Group-V received-oxygen enriched air via standard venturi masks at 8L/min fresh gas flow (FGF); Groups S4 and S8 breathed via SOM’s at FGF of 4 and 8L/min. Inspired (Fi) and expired (Fe) gases, as well as blood gas tensions were measured.

Results
The groups were demographically similar. The S4- and V-groups had similar FiO₂ (34.2±8.5 and 36.3±5.6 kPa respectively) and PaO₂ (20.1±6 and 19.8±5.8 respectively). The S8 group had significantly greater FiO₂ (47.3±12 kPa) and PaO₂ (27.7±6.4 kPa). FiCO₂ was greatest in the S4-group (0.3 kPa, p=0.014). PaCO₂ was lowest in the V-group (p<0.001). Breathing was not more visible in any group because of poor mask fit.

Discussion
Advantages of the SOM:
• Light, disposable, inexpensive
• Can be used with a facemask or endotracheal tube/laryngeal mask
• Movement of the reservoir bag enables PACU staff to detect breathing. (A better-fitting mask is now supplied).
• Manually-controlled ventilation is possible
• FiO₂ can be controlled by varying the FGF.

We surmise that an improved facemask will allow even greater control of FiO₂.

Reference:

The HIV Airway

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South Africa now has an estimated 5.3 million adults and children living with HIV/AIDS. Annual national antenatal surveillance shows an HIV prevalence of 26.5% among pregnant women.

Anaesthetists are confronted with an increasing number of HIV infected patients, presenting for both emergency and elective surgery. They range from having asymptomatic infection to end stage AIDS.

Airway problems are frequent. They can present in a variety of ways, from an airway related emergency to an incidental finding at laryngoscopy.

Some airway pathology is almost exclusive to this group of patients. This includes Kaposi’s sarcoma and opportunistic infections by aspergilla and candida albicans, all of which have been reported to result in airway obstruction. Conditions not limited to immuno compromised states such as epiglottitis, retropharyngeal abscesses, mediastinal masses and Ludwig’s angina are seen, with increased severity, in HIV infected individuals.

Knowledge of a patients’ HIV status may alert one to potential airway problems. This review addresses some of the incriminating lesions and suggests possible management strategies

References