

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”¹, 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-anaesthesia 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 FiO_2 (34.2 ± 8.5 and 36.3 ± 5.6 kPa respectively) and PaO_2 (20.1 ± 6 and 19.8 ± 5.8 respectively). The S8 group had sig-

nificantly greater FiO_2 (47.3 ± 12 kPa) and PaO_2 (27.7 ± 6.4 kPa). FiCO_2 was greatest in the S4-group (0.3 kPa, $p=0.014$). PaCO_2 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
- FiO_2 can be controlled by varying the FGF.

We surmise that an improved facemask will allow even greater control of FiO_2 .

Reference:

1. Martin J, Brimacombe JR. Oxygen enrichment during emergence with the laryngeal mask – the ‘T-Bag’ versus the T-piece. *Anaesthesia* 1997; 52:1195-1198.

