Experience with a versatile anaesthesia machine

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Dear Editor,

Working as the only anaesthesiologist at Balkh Civil Hospital in Mazar-e-Sharif, Afghanistan, one had to work in the operation theatres that had anaesthesia machines donated by various countries. Working of one such, 'Normeca Anesthesia Machine' (Norwegian Joint Medical Service) is described to highlight its versatility, portability (Figure 1) and that fact it could prove to be a worthy acquisition; a factor that is of relevance to the field conditions that are prevalent in many of the Armed Forces medical setups.

THE NORMECA FIELD ANAESTHESIA MACHINE

The field anaesthesia machine can operate independent of compressed gases; it does not have nitrous oxide. The machine has an OMV-50 vapouriser which is a 'multi-agent' vapouriser (Figure 1).

The machine can run on any of the following:

1. High pressure source (air from compressor and oxygen from cylinders).
2. Air+oxygen from the concentrator (low pressure system).
3. Draw-over system (Figure 2) with air or draw-over+oxygen.

METHOD OF USE

Draw-over System

In the absence of compressed air and oxygen cylinder, atmospheric air can be used as a draw-over system (air-over halothane/isoflurane) with the help of a self-expanding bag for controlled ventilation (Figure 2). The air reservoir (750 mL capacity) consisting of corrugated tube is open to the outside air, with an air-filter protecting the intake.

The change-over lever when placed in vertical position (↑) (Figure 2) enables air to be drawn from reservoir or the same can be enriched with oxygen from an oxygen concentrator through the 'nipple'.

Semi-open System

The change-over lever when placed in horizontal position (→) (Figure 2, inset) ensures that the non-rebreathing system can be

Figure 1 The Normeca machine, placed on its portable wooden container with O₂ cylinder and concentrator.

used with oxygen from either a cylinder (high pressure) or concentrator (low pressure)—inhalational agent, air from compressor.

A selector switch in 'BAG' position enables manual ventilation with a self-expanding bag, with a standard Ambu MK3 valve and a compressor driven volume controlled ventilator makes automatic ventilation switch-over possible (Figure 1).

AUTHOR'S EXPERIENCE

During the period between September 2007 and October 2008, a total number of 286 cases were conducted in the operation theatre at Balkh Hospital using the Normeca Machine. Used along with a non-invasive blood pressure (NIBP) monitor and a pulse-oximeter, the machine was found to be safe and reliable. The method used, was to use the oxygen concentrator as the oxygen source as long as electricity was available and change to oxygen from cylinder or the draw-over system during electricity failure. Used along with the inhalational agent it maintained the oxygen saturation levels at 98–99%. Oxygen protective devices are not required in this model.

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Figure 2 Line diagram of the machine.
FGF: fibroblast growth factor.

SUGGESTED READINGS

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