of his Committee’s recommendations. Stock and Strunin [2] concluded “repeated exposure to halothane in adult humans, particularly in obese, middle-aged women and over a short period of time (probably 4–8 weeks), may result in severe liver damage. However there is no means of predicting this, and the ‘safe time interval’ is unknown; the incidence of UHFH is probably of the order of 1 in 10 000 anaesthetics. It is of interest that this figure is also quoted as the overall risk of deaths solely as a result of anaesthesia...”. The time interval of 4–8 weeks is taken from Neuberger and Williams [3]. Both publications recognize that, when repeated exposure to halothane is considered as a possible factor in hepatic necrosis, the intervals may be very long, extending to some years. The apparently arbitrary selection of 3 months as the specified interval by the C.S.M. is not obviously supported by either publication, or any other data published anywhere. The C.S.M. comment on the possible significance of pyrexia in the postoperative period stands without any obvious justification in the literature.

I accept that C.S.M. can draw support from the editorial by Dr Blogg [4] and from Anonymous [5]. Presumably, they missed the correspondence which followed Dr Blogg’s editorial just as they have clearly misunderstood the letter from Professor Adams and his colleagues. In any case, I should be interested in Professor Asscher’s definition of a majority.

C.S.M. has made a pronouncement which is bound to have a major impact on the practice of anaesthesia by virtue of their authority. They have made no obvious attempt to balance the risks of continuing and abandoning halothane. Worst of all, they failed to consult with the specialty of anaesthesia before going into print. These are the important issues, and these were the issues addressed in the Editorial.

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IMV AND WORK OF BREATHING

Sir,—We were delighted to read the paper by Mecklenburgh and colleagues [1], which is of great clinical interest to anaesthetists in intensive care units. The authors have shown that the increase in the work of breathing—as a result of the higher inspiratory resistance of the IMV circuit of Kontron 3100 ventilator—delayed the weaning of the patient from the ventilator. We would like to point out that the use of ventilators, such as the Bird IMV, which are capable of delivering continuous flow in the IMV mode, might be more advantageous in the clinical circumstances described by the authors.

The IMV Bird is fitted with a demand CPAP system which allows the installation of an automatic baseline compensator which, among many other functions, reduces the fluctuations in the baseline pressures observed whenever inspiratory demand exceeds inspiratory flow. This, therefore, significantly reduces the work of the breathing. This system is capable of giving inspiratory flow that is proportional to the inspiratory effort without altering the baseline pressures. Further, the Bird CPAP system was devised to reduce the work of breathing during IMV mode especially in the presence of PEEP. Most ventilatory devices provide a regulated positive end-expiratory pressure. However, during IMV procedures with PEEP, the patient may have to create substantial pressure gradients to entrain gases from the breathing circuit. This may significantly increase the work of breathing with resultant increase in oxygen consumption and carbon dioxide production—as might have happened in the case described by the authors. We do not know if the authors were using PEEP during weaning, which might have contributed to the difficulty in weaning. When all adjustments are made in the IMV mode in the Bird IMV system (including nebulization) which is done by an additional flow, there could be a continuous flow in the breathing circuit which might reduce the inspiratory resistance and, hence, work of breathing. The resistance of the humidifier may not be important in these circumstances.

Figure 2 of Mecklenburgh and colleagues shows an interesting finding. The slopes of A, B and C were similar, but that of D (alternate IMV) was less steep at higher flows compared with those of the ventilator circuits. Although the resistance of the ventilator alone (C) at lower flow rates was close to that of the IMV circuit, a higher flow rate the difference between them appears to be substantial. This might suggest that the alternate IMV system was capable of delivering the higher flows required at higher inspiratory efforts more easily than the Kontron 3100 ventilator system used (inspiratory demand is better met by the inspiratory flow in the alternate IMV circuit than the ventilator). Therefore, the breathing characteristics of the alternate IMV system make it a more efficient circuit in the IMV mode than the ventilator itself. It would have been very interesting to see if the introduction of the humidifier to the alternate IMV system would increase the total resistance of the alternate IMV circuit by an anticipated 0.6 kPa or a value less than 0.6 kPa.

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REFERENCE


Sir,—In response to the specific question posed by Dr Shankar and his colleagues, we were not using PEEP during weaning. While not necessarily agreeing with all the claimed advantages of the IMV Bird, we think that it undoubtedly true that, if PEEP is used during spontaneous ventilation, then gas must be available at an equal positive pressure during the inspiratory phase—unless the spontaneous breathing is to be assisted, or even deliberately hindered.

With regard to the last sentence of the letter: as we indicated in our paper (page 1052, column 2) it would not be sensible to include a humidifier in the alternative IMV system (since it is readily supplied with humidified gas).

The main message of our paper was not to extol the advantages of the alternative IMV system, but to show that the work of breathing through an IMV ventilator may be unduly and unnecessarily great.

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