

*Letters to the editor*

**Unusual vaporizer design may encourage irregular practices**

July 6, 1995

**To the editor**

In the practice of anesthesia, the inhalational agents play a crucial role. As they are potent agents with rapid intake, their delivery has to be precise. A number of vaporizers are available that are agent-specific and deliver accurate amounts of the drug at specific gas flow rates. Other aspects of the vaporizer worth mentioning are the inlet port, the outlet port, and the indicator tube. These components should be positioned so that they perform their purpose efficiently. Any awkward design may affect the vaporizer performance.

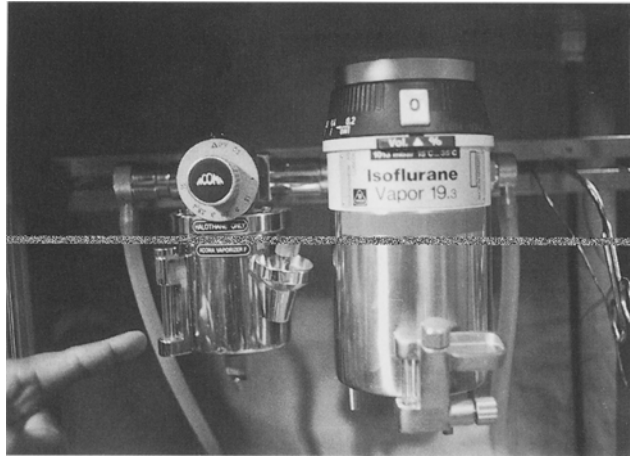
Here we mention the Acoma halothane vaporizer (Acoma Medical Industry Co., Ltd., Tokyo, Japan) (Fig. 1). This vaporizer has a sleek look and drug delivery is accurate within the recommended gas flows. We believe, however, that there is a major problem with its indicator tube (Fig. 1). The indicator tube is substantially covered by its metal base, which is at the same level as the bottom of the vaporizer. This design results in no indication of fluid until the vaporizer is filled with approximately 30ml of halothane, irrespective of the wick's being wet. During use in the operating theater, when the level in the indicator tube cannot be seen, many users have been found to shake the anesthesia trolley to agitate the fluid in the vaporizer and thus determine whether fluid remains or not. When the anesthetic concentration was measured (Artema Multigas Monitor, M/S Artema Medical Systems, Sweden) we found that when the trolley is rocked, the anesthetic concentration increased by 30% to 35% at the same gas flow and same concentration setting. The practice of trolley shaking is clearly unacceptable and is strongly discouraged by us.

In comparison, the Drager isoflurane vaporizer has a properly located fluid indicator tube in which the smallest amount can be seen immediately (Fig. 1). Therefore we think that modification of the Acoma vaporizer is essential as far as its fluid indicator tube is concerned. The unused halothane remaining in the vaporizer will change color due to increasing level of stabilizing agents and so cannot be used subsequently. As the cost of halothane is quite high, to leave as much as 30ml unused each time an anesthetic is administered is extremely

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**Fig. 1.** Acoma vaporizer (*left*) in use. The *finger* points to the covered part of the indicator tube. The Drager Isoflurane vaporizer (*right*) is mounted on the side

wasteful. Furthermore if one has to shake the anesthesia trolley to look for the level of anesthetic, then we think the hemodynamic upheavals caused by sudden increases in concentration of the inhalational agent place undue stress on the patient and anesthetist.

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