Letter to the Editor


I acknowledge the work done by Wright in highlighting the importance of analgesia in paramedic practice, and in describing variations in pain management guidelines used by Australian ambulance services. The latter reinforces the need for national evidence-based clinical practice guidelines in the form that is currently used in the United Kingdom.(1)

The major theme of this article relates to the safety of methoxyflurane, in terms of patient safety due to concerns about adverse effects, and also paramedic safety due to environmental exposure. However, much of the data presented is of very low quality or is extrapolated data from research that is not directly related to the topic, but which has nevertheless been used to strengthen the author’s claim that there is “conclusive evidence that [methoxyflurane] was both harmful to patients and to the people administering it.”

Methoxyflurane has been reported to cause dose-dependent nephrotoxicity in patients when administered at anaesthetic doses,(2-4) and this is acknowledged by the manufacturer in the product information.(5) However, methoxyflurane is no longer approved for anaesthesia in humans. When used as an anaesthetic the drug had a prolonged induction time and was also associated with protracted somnolence following the procedure, and these features along with the risk of nephrotoxicity and hepatotoxicity led to the use of alternative agents.(6)

The dose required to achieve analgesia is considerably lower than the dose required to produce anaesthesia, and the few case reports of renal failure or hepatitis following the use of the drug at analgesic doses have involved prolonged administration or frequent use of the drug. None of these cases occurred in a paramedic practice setting.(7-10)

Wright fails to reference a large Australian study that used data linking to investigate the odds of heart disease, renal disease, hepatic disease, diabetes or cancer among patients receiving paramedic-initiated methoxyflurane analgesia compared with a matched group that did not receive this drug. The study failed to identify “any increase in the risk of disease occurrence or death with the use of Methoxyflurane to that of a similarly comparable group.”(11) This is inconsistent with the unsupported claim that methoxyflurane administered as an analgesic in paramedic practice is associated with patient harm.

Wright also unconditionally states that frequent exposure to methoxyflurane poses a health risk to paramedics, and cites a paper published in the Journal of the American Dental Association in 1980 to support this claim.(12) In this study Cohen and colleagues conducted a survey to study self-reported health problems among dentists and dental assistants who were exposed to anaesthetic gases compared with those who used other forms of anaesthesia in the dental clinic (non-exposed control group). The authors reported statistically significant increases in the reported rates of spontaneous abortion among female dental assistants and wives of dentists among the group who were regularly exposed to anaesthetic gases. The most common gas used was nitrous oxide, with only 18.7% of dentists reporting the use of halogenated anaesthetics such as halothane in addition to nitrous oxide. It should be noted that use of methoxyflurane was not reported in this study.(12) The study design and methods used by Cohen and colleagues to report the outcomes of interest cannot control for
variables that may also be associated with the health problems reported. These methodological limitations and the fact that methoxyflurane was not described in this study should preclude the use of this data to develop the recommendations made by Wright in the conclusion of his report.

Further evidence to support the claim that methoxyflurane represents an occupational hazard to paramedics is based on extrapolation of patient dosing recommendations contained in the product information to claim comparable exposure limits for paramedics. This fails to recognise that the patient dose is many times higher than the ambient levels in the ambulance. The facts are further embellished by the claim that the respiratory excretion of methoxyflurane is synonymous with the fraction of inspired methoxyflurane measured in paramedics in the ambulance. This misrepresents basic physiological and pharmacological principles.

The safety and efficacy of any therapeutic interventions are central to the care provided by paramedics to individuals in the community. Likewise, paramedic safety and the management of environmental hazards is a fundamental component of practice. It is important that studies are undertaken to address any knowledge gaps in these areas. However, it is also vital that data is reported accurately and objectively to inform practice.

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References

