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Has malignant hyperthermia really disappeared with halothane?

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Editor

We were somewhat surprised to read Sneyd's[1] misrepresentation of malignant hyperthermia (MH) in his paper, 'Thiopental to desflurane—an anaesthetic journey. Where are we going next?' To conflate the clinical incidence of MH with that of halothane hepatitis, thereby implying that MH is a historical disease of halothane anaesthesia, is a dangerous oversight that is compounded by the apparent legitimacy afforded by its publication in the leading anaesthesia journal. We would like to refer the readers to a review paper in the British Journal of Anaesthesia that addresses this misconception.[2] The gravity of such a misunderstanding is highlighted by a case referred to our unit, in which the patient survived two MH reactions; the second occurred because the anaesthetist thought isoflurane was safe to use in MH. It is vital if we are to maintain the future safety of our patients that all anaesthetists are explicitly aware that MH is not a disease specific to halothane.

Data from major MH registries[2,3] indicate that all volatile anaesthetic agents in current use in Western countries (isoflurane, sevoflurane, and desflurane) can trigger an MH reaction in a genetically susceptible individual. Moreover, the UK registry data indicate that the most commonly implicated triggering agent since 1970 has been isoflurane and not halothane.[2] Our most recent unpublished analysis highlights sevoflurane as a common triggering agent in the UK over the past 10 yr, having been used as the sole volatile agent in 28% of all cases of MH.

Whilst the past 30 yr have seen the withdrawal of enflurane and halothane from UK practice and the introduction of sevoflurane and desflurane, the number of referrals for suspected MH reactions to our unit has been remarkably stable over this period. In 1990, there were 41 referrals who were considered to have a clinical history of a reaction that was sufficiently likely to need further testing using the in vitro contracture test (IVCT), with 21 of these having a positive result on the IVCT. In 2016, there were 43 referrals with 18 of those tested by IVCT having a positive result. Critically, deaths from MH still occur,[4] but thankfully, the MH-related mortality has reduced drastically over the last 4 decades from approximately 70% to under 5%,[5] with the major decline occurring whilst halothane was still commonly used. This reduction was primarily attributable to the increased awareness amongst anaesthetists of the condition, which enabled a prompt diagnosis and treatment of an MH reaction. Interestingly, recent North American studies suggest that the MH-related mortality rate has increased during the period of rapid decline in halothane use.[5–8] Larach and colleagues[6,7] found a 6.6-fold increase in the relative risk of MH deaths between 2007 and 2012 compared with 1987–2006. One reason given by the authors was a lack of temperature monitoring in the earlier cases to aid in the early diagnosis and treatment of MH. However, another contributory factor to this increase could be attributable to anaesthetists loosening their guard with the false assumption that MH ceased to exist with the termination of halothane anaesthesia.[8]

In summary, it is critical that the erroneous view that MH is a disease of halothane anaesthesia is not allowed to permeate any further if we are to maintain the safety of our patients in the future.

Declaration of interest

P.M.H. is a member of the British Journal of Anaesthesia Board.

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