



EUROPEAN MALIGNANT HYPERTHERMIA GROUP (EMHG)

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Occupational exposure to volatile anaesthetics

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There is an international consensus that, providing standard COSHH (Control of substances hazardous to health) regulations are followed, MH susceptible individuals are **not** at risk of developing MH through occupational exposure in the operating theatre, post anaesthesia care unit or intensive care unit. We now recognise MH is a *time weighted dose-dependent phenomenon*. In other words in order for MH to be triggered the MH susceptible individual must be exposed to a certain quantity of anaesthetic. Triggering could therefore occur after a short period of exposure to a high concentration of triggering anaesthetic or a longer duration exposure to a lower concentration of anaesthetic. The dose required to trigger MH is considerably more than the exposure limits permitted by COSHH regulations. We also have the reassurance of knowing that theatre personnel with MH susceptibility have spent their whole careers without untoward events-many working in the days when scavenging or removal of the anaesthetic gases was not as good as it is currently.

It is theoretically possible that *chronic* exposure to relatively low anaesthetic concentrations could cause some instability of muscle membranes in an MH individual and this might be asymptomatic or produce muscle aches or cramps. This would likely be associated with a rise in the serum creatine kinase concentration. It should be noted that some MH susceptible patients develop muscle aches and/or

cramps associated with a rise in serum creatine kinase levels during the course of every day life. Before an MH susceptible individual starts working in an operating theatre environment *we advise that a series of baseline creatine kinase concentration measurements are made.* This can be done by taking three such measurements over a one week period when the individual is undertaking similar activities in terms of physical exertion that they would otherwise be taking in the operating theatre environment. If there are subsequently any concerns about chronic exposure to anaesthetic gases, creatine kinase concentrations can be measured and compared to the baseline levels.