



QUEEN'S UNIVERSITY DEPARTMENT OF ANESTHESIOLOGY

SUBJECT:	Postoperative monitoring for MH	NUMBER	
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Introduction:

Malignant hyperthermia (MH) is an autosomal dominant pharmacogenetic disease characterised by skeletal muscle rigidity and systemic hypermetabolism after administration of succinylcholine or potent inhalational anesthetic agents (Stoelting and Dierdorf, 1993). Diagnosis of the phenotypic trait for MH commonly involves the halothane-caffeine contracture test performed on a skeletal muscle biopsy specimen (Rosenberg et. al., 1992). However, in the future, non-invasive diagnostic approaches might also include nuclear magnetic resonance investigations following a standardized stress (Payen et. al., 1991) and/or genetic testing for ryanodine receptor mutations (Otsu et. al., 1992).

Patients with a family history of MH and/or otherwise suspected of having MH are considered "MH susceptible" and require special anesthetic care involving the avoidance of known MH triggering agents, use of an appropriately prepared anesthetic machine and possibly even pretreatment with dantrolene (Gronert and Antognini, 1994). Despite such special anesthetic care, postoperative development of potentially fatal MH crises have been reported following trigger-free anesthetics (Grinberg et. al. 1983; Souliere et. al., 1986; Carr et. al., 1995; Hoenemann et. al., 2003). Thus, it has been suggested that although most cases of MH occur *during* general anesthesia, the 12 hour period immediately following surgery is also a critical time, including the postanesthetic care unit (MH Association of the U.S., 2000). The MH Association of the U.S. recommends that MH susceptible patient should be monitored and observed for three to five hours postoperatively (MH Association of the U.S., 2000).

Policy:

The following orders regarding the postoperative monitoring and observation of MH susceptible patients are to be followed, regardless of anesthetic technique (including local anesthesia) or patient location:

- Upon admission to the recovery area (i.e. in PACU, Connell 5 or MRI), MH susceptible patients (regardless of anesthetic technique) must be observed and monitored in hospital for a minimum of 4 hours (regardless of whether the patient is in PACU, OPPU, EPACU or hospital ward).
- MH susceptible individuals may be discharged from the recovery area (i.e. in PACU, Connell 5 or MRI) as soon as discharge criteria have been met as long as they are transferred to an area

that is able to meet the monitoring requirements for the remainder of the 4 hour observation period.

- Monitor vital signs, including temperature q15 minutes for 1 hour, then q30 minutes for 1 hour, then q1 h for 2 hours. Observe urine for myoglobinuria (cola-coloured urine), if patient voids.
- Upon discharge from PACU, inform the nurse receiving the patient of the need for MH susceptible patients to be assessed as follows:
 - Observe and monitor patient for a minimum of 4 hours from the time of admission to PACU.
 - Monitor vital signs, including temperature, q1 h
 - Observe urine for myoglobinuria (cola-coloured urine), if patient voids.

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