

IS THERE A TEST FOR MH?

There is currently no simple diagnostic test available for screening the general population. The most accurate diagnostic test involves a biopsy of skeletal muscle from the thigh. It is usually reserved for families where an MH episode has occurred, or when a patient has had a previous suspicious reaction to an anaesthetic.

The test is available at one centre in New Zealand, which is Palmerston North Hospital.

DNA testing for known families identified as being at risk of MH, is offered. This can be performed by arrangement by Palmerston North Hospital through their local hospital or by their GP. All this involves is a simple blood test which is sent to a lab to be screened for known MH DNA mutations.



CAN MH SUSCEPTIBLE PATIENTS HAVE SURGERY?

YES! Surgery is safe for known MH-susceptible patients by using non-triggering anaesthetics and special precautions and technique.

In surgery for a known MH-susceptible, the anaesthetist will:

- Avoid the use of known MH-triggering anaesthetics
- Be familiar with the signs and treatment of MH.

WHY TEST FOR MH IF OTHER ANAESTHETICS ARE AVAILABLE?

The anaesthetic drugs which trigger MH are the most commonly used agents, especially in an emergency situation. If the MH status is not able to be identified, this could lead to the patient having a preventable MH crisis.

FEEDBACK

We encourage feedback and assurance is given that comments will not adversely affect your current or future care.

You can do this:

- through discussion with MidCentral Health staff providing your care
- by completing "Tell us what you think..." pamphlets available from all services
- by contacting our Customer Relations Co-ordinator, PO Box 2056, Palmerston North or phone (06) 350 8980
- by contacting a Health and Disability Commissioner Advocate, phone 0800 112 233.

CONTACT PHONE NUMBERS:

Monday to Friday
8.00am – 5.00pm
Ph (06) 350 8565

On-call Consultant Anaesthetist
After hours
Ph (06) 356 9169



Malignant Hyperthermia

DEPARTMENT OF
ANAESTHETICS

PALMERSTON
NORTH
HOSPITAL

The sudden unexpected death of a healthy individual undergoing minor surgery, is a tragedy almost beyond comprehension in this day of modern medical miracles. Yet this still happens from the condition known as Malignant Hyperthermia (MH). Of those who survive, some could be left with severe brain damage, failed kidneys, or impaired function of other major organs.



WHAT IS MALIGNANT HYPERTHERMIA (MH)?

MH is an inherited condition that leads to a chain reaction of symptoms. This is triggered by commonly used anaesthetic gases that keep you asleep during an operation. To relax breathing muscles, suxamethonium is often used with a general anaesthetic. Both can trigger an MH reaction leading to increased concentrations of calcium in the muscle cells. In an emergency, both anaesthetic gases and suxamethonium are commonly used so it is important to be aware if MH is in the family.

WHO IS SUSCEPTIBLE TO MH?

MH susceptibility is genetically inherited. The reason for the underlying problem in some families is a single defective gene, usually inherited from one parent. In other families, the genetic pattern is not clear.

Those who are susceptible may be completely unaware of this risk, unless exposed to the anaesthetics leading to a life threatening crisis. However, not everyone who has the MH gene has an MH reaction during every triggering anaesthetic, so they could have had many uneventful anaesthetics in the past.

WHAT HAPPENS DURING AN MH REACTION?

Researched evidence has shown that changes in the processes which control muscle contraction, are altered when a MH susceptible patient is exposed to the triggering anaesthetic drugs. The muscles then contract and become rigid, leading to a greatly increased metabolism. This process results in heat production (fever) and muscle cell breakdown.

The symptoms include:

- Muscle rigidity
- Irregular heartbeat
- Fast breathing
- High temperatures
- Failing kidneys.

Untreated can lead to:

- Failure of other body systems
- Cardiac arrest
- Brain damage
- Death.

ARE OTHER ANAESTHETICS SAFE?

Yes. Narcotics (opioids) and tranquillisers, along with the inhaled gas Nitrous Oxide, are safe for MH susceptible people. Local anaesthetics have also been found to be safe. Total intra-venous anaesthetic agents are always used in MH susceptible people. This drug puts the patient to sleep and is continuously administered. This maintains their state of unconsciousness throughout the surgical procedure.

HOW IS MH TREATED?

Since 1979, the antidote drug Dantrolene Sodium (Dantrium) has been available for the treatment of MH and has contributed greatly to a dramatic decline in mortality. The syndrome must be identified and treated early for a successful outcome. Greater awareness among anaesthetists and other medical professionals in the past few years, has resulted in earlier diagnosis and treatment. Most people survive, however, people are still dying from MH reactions. The best treatment is prevention, through detection of those at risk prior to surgery.



HOW CAN MH-SUSCEPTIBLE PATIENTS BE IDENTIFIED?

Because MH is usually an inherited disorder, all members of a family in which MH has occurred must also be considered MH susceptible and treated accordingly, unless proven otherwise. Even those who have prior uneventful operations cannot be certain they are at risk – deaths have occurred after patients have had successful surgeries. Certainly any family with a history of anaesthetic deaths, or complications, should make this known to the anaesthetist before undergoing surgery.