

Thiamine and use of Pabrinex: Background information

At Colston Fort we are seeing an increasing number of people who either have overt signs of nutritional deficiency or are at high risk of developing them. We have also encountered cases of Wernicke's Encephalopathy developing during detox, even when thiamine prophylaxis is given.

The Wernicke Korsakoff Syndrome is a neurodegenerative disorder caused by a combination of alcohol misuse and a deficiency of dietary vitamin B1 (thiamine). It has an acute phase (Wernicke's Encephalopathy) that can lead either to death (in 20%) or to a chronic phase characterized by short-term memory loss, (Korsakoff Syndrome). Even in the presence of established neurological signs patients can improve significantly with administration of high dose thiamine.

The brain damage due to thiamine deficiency is a **preventable** condition if appropriately managed. Patients undergoing alcohol detoxification are particularly at risk of developing acute or chronic thiamine deficiency, and the co-occurrence of withdrawal seizures complicates the clinical outcome.

Chronic heavy alcohol consumption leads to thiamine deficiency because:

- a) Alcohol directly reduces the absorption of thiamine and other nutrients through the gut;
- b) Missed meals, vomiting and diarrhoea, all very common in alcoholics, decrease availability of thiamine.
- c) Conditions that affect the liver such as fatty liver and liver cirrhosis also prevent the thiamine storage in the liver making the blood thiamine level even lower;

Signs and symptoms of thiamine deficiency are non-specific but include loss of appetite, nausea and vomiting, fatigue, weakness, apathy, insomnia, anxiety, difficulty in concentration, giddiness, diplopia and glove & stocking neuropathy.

The signs and symptoms of WE are classically confusion, ataxia and ophthalmoplegia (nystagmus on lateral gaze) and it is often associated with neuropathy. Recent publications have emphasised a so-called "sub-clinical" WE, 80% of which remains undiagnosed.

A review found two questions were predictive for thiamine deficiency:

1. Frequency of missed meals because of lack of funds
2. Co-occurrence of other nutritional related conditions e.g. polyneuropathy

Guidance for administering I.M. Pabrinex

- One pair of Pabrinex ampoules once a day for three days is required for prophylaxis.
- The contents of one ampoule number 1 and one ampoule number 2 of Pabrinex I.M. injection (total 7ml) should be drawn up into a single syringe, to mix them just before use, then injected slowly, over 20-30 sec, high into the gluteal muscle, 5cm below the iliac crest – the **upper outer quadrant**.
- If a rash appears at the injection site halt further injection. It is less uncomfortable if the ampoules are warmed before administration.
- Licensed practice is to administer a single 7ml injection unless patient preference/clinical need requires splitting the dose.
- Preparations containing high concentrations of thiamine may give rise to anaphylactic shock, and trained personnel should be available, together with appropriate equipment. However the incidence of anaphylactic reactions to intramuscular thiamine preparations is 1 per 5 million intramuscular ampoules sold in the UK (Committee on Safety of Medicines).
- Patients should be advised to wait in the surgery for 15min after the injection to ensure there is no allergic reaction.