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Letters to the Editor

Thiamine in Wernicke's syndrome – how much and how long?

Sir,

Wernicke's syndrome is well described as a manifestation of thiamine deficiency, particularly in alcoholics and hyperemesis gravidarum, yet the exact dose of thiamine, its method of administration and duration of treatment, both prophylactically and therapeutically, is unclear. This report illustrates the uncertainty that exists – an alcoholic was given oral thiamine prophylactically but still went on to develop Wernicke's syndrome. The discussion that follows looks at the available data on dose and duration of thiamine therapy in Wernicke's encephalopathy.

A 33-year-old woman was admitted with a haematemesis. She gave a four-year history of drinking one litre of vodka per day with an unsuccessful attempt at detoxification one year previously. Endoscopy revealed grade III oesophagitis with a hiatus hernia and omeprazole was commenced. Routinely she was started on oral thiamine 200 mg bid and Vitamin B complex one per day for the duration of her in-patient stay (12 days) and for one month thereafter. Her compliance was monitored in a residential detoxification unit.

Ten weeks later she represented with nausea and vomiting and was rehydrated intravenously with normal saline and 5% dextrose for three days. Towards the end of that time she suddenly developed diplopia. Ocular examination revealed skew deviation at rest, nystagmus in all directions with broken pursuit movements. Finger/nose and heel/shin testing was normal. However, on walking, the gait was unsteady and she was unable to perform tandem gait. Short-term memory was normal. Despite the previous thiamine supplement a clinical diagnosis of Wernicke's syndrome precipitated by dextrose infusion was made. She was treated with intravenous multibionta for six days (50 mg of thiamine per day) and oral thiamine 400 mg per day. Her symptoms gradually improved and after a two monthly follow-up she was left with a residual fine lateral nystagmus. Magnetic resonance imaging (MRI) of the brainstem caried out at the time of the crisis was normal.

The recommended intake of thiamine is 0.4 mg per 4200 kj (1000 kcal) of diet, ie, 1–5 mg per day in adults with normal thiamine reserves. This represents protection from deficiency for a period of between 18 and 35 days. The maximum thiamine absorption following a single dose is estimated to be 5–15 mg though absorption may be increased by taking thiamine in divided doses with food. Subsequently alcoholics become thiamine deficient from a variety of causes including poor diet, decreased absorption, and metabolic derangement.

Sampling of literature reveals the *ad hoc* dosage regimes used to treat Wernicke's encephalopathy. Case reports which describe successful resolution of the condition (by definition presumably resulting in a positive reporting bias) have used a range of intravenous dosages between 100–500 mg per day.[1–4] Other sources give unreferenced figures of 50–300 mg per day.[5–7] There are no data available on the duration of treatment, be it intravenous acute or long-term oral supplementation.

Table Available preparations containing thiamine

Preparation	*Company*	*Thiamine dose (mg)*	*Cost/dose (pence)**
Intravenous			
Multibionta	Merck	50	161
Pabrinex	Link Pharmaceuticals	250	174
Parentrovite	Bencard	250	discontinued
Thiamine (unlicensed)	Northwick Park Hosp	100	174
Oral			
Vitamin B compound	generic	1	0.35
Multivitamins BP	generic	1	0.75
Vitamin B compound strong	generic	5	0.50
Thiamine	generic	25	0.85
		50	1.45
		100	2.35
		300	3.70

*Drug tariff September 1994

Current practice therefore relies on titration of the clinical state and biochemical parameters – an empirical option.

This report is instructive in outlining some of the difficulties that can occur in the treatment of putative deficiency states. Despite being provided with thiamine for 40 days, she still went on to develop brainstem signs when her thiamine requirement was increased by the inadvertent administration of glucose. Three learning points can be drawn from this (see box).

With these points in mind we would suggest that a reasonable (and unproven) strategy might be Pabrinex (intravenous high potency) two ampoule pairs over 10 minutes which may be repeated eight hourly for two days, followed by one ampoule pair intravenously per day until the patient can tolerate oral thiamine. This should be continued at 100 mg bid for at least three months and until the patient stops drinking. Available thianine-containing preparations are given in the table.

Thiamine crises are common and neurologically devastating; however they are gratifyingly reversible and we believe a more concerted and logical approach is demanded.

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Learning points

- absorption of thiamine is impaired in alcoholics and a period of intravenous loading would seem to be essential
- if dextrose has to be used it should be preceded by intravenous thiamine, even if there is a recent history of thiamine administration
- thiamine supplementation should be continued as long as the patient remains an alcoholic

Wernicke–Korsakoff syndrome due to hyperemesis gravidarum precipitated by thyrotoxicosis

Sir,

Wernicke's classical triad (see box) is only part of the wide variety of presenting features that make up the eponymous encephalopathy.[1] We report a 30-year-old lady who presented 19 weeks into pregnancy with prolonged vomiting and 8 kg weight loss in the previous two months. Five days before admission she refused further food and became increasingly lethargic, finally taking to her bed. Her first pregnancy had been ectopic, and she was otherwise well. She denied smoking, alcohol ingestion, and was only taking anti-emetic medication.

On examination she was obtunded, her skin turgor was reduced and mild jaundice was