Title	**Wernicke's encephalopathy (WE) and Thiamine Supplementation for Alcohol Dependent Patients**		
Directorate	COP-M	Policy/Procedure No	
Author	Pharmacy Services	Review /Copy No	
Reviewer	Jonathan Bate	Implementation Date	
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Guidance document approved fro NHS Fife Board by the Fife Area Drug and Therapeutics Committee

Background

Wernicke-Korsakoff syndrome (WE) is a relatively common and potentially lethal condition resulting from thiamine deficiency, but is preventable or reversible if treated early. Established WE can have major long-term consequences, with patients requiring permanent in-patient care. It is commonest in heavy drinkers who have a poor diet. The common signs of WE – confusion, ataxia and varying levels of impaired consciousness – are difficult or impossible to differentiate from drunkenness. The eye signs (ophthalmoplegia/nystagmus are present in less than 30% of cases and because of this WE may go unrecognised if not considered.

N.B. Cook and Thompson, reporting in the British Journal of Hospital Medicine (1997, **57,** 461-465) note that in healthy volunteers that from a 10mg oral thiamine dose the maximum amount absorbed is between 4.3 and 5.6mg, and this does not increase with larger doses (absorption of thiamine across the intestinal wall is mediated via an active **saturable** transport). In abstemious malnourished alcoholics the oral absorption is generally about 30% of healthy individuals (i.e. approx. 1.5mg from a single oral dose). The authors also show that oral thiamine supplementation had little or no effect on CNS vitamin status whereas parenteral thiamine replacement is rapidly effective in the treatment of established Wernicke's Encephalopathy and is an effective prophylactic treatment for high-risk patients.

Operating Procedure:

1. *Function*

1.1 To offer guidance on the use of thiamine for alcohol dependent patients at risk of Wernicke's Encephalopathy.

2. *Location*

2.1 NHS Fife

3. *Responsibility*

3.1 Doctors, Nurses, Pharmacists

4. *Operational System*

4.1 **Who to treat?**

4.1.1 All patients presenting with any evidence of chronic alcohol misuse and any of the following symptoms:

- Acute confusion
- Decreased conscious level
- Ataxia
- Ophthalmoplegia
- Memory disturbance
- Hypothermia with hypotension

4.1.2 When initially seen patients may still be drunk but treatment should not be withheld on these grounds.

4.1.3 Patients admitted for alcohol detoxification should be prophylactically treated with parenteral thiamine as they are at high risk of developing WE

4.1.4 Patients with delirium tremens may often also have WE and should receive treatment with parenteral thiamine

4.1.5 All hypoglycaemic patients (who are treated with intravenous (I.V.) glucose) with suspicion of chronic alcohol ingestion must be given I.V. Pabrinex immediately because of the risk of acutely precipitating WE.

4.2 **Treatment**

4.2.1 The only available I.V. thiamine preparation is Pabrinex. This contains thiamine (B1), riboflavin (B2), pyridoxine (B6) and nicotinamide. The intramuscular (I.M.) Pabrinex preparation includes benzyl alcohol as a local anaesthetic.

4.2.2 Pabrinex injection IM and IV both include thiamine 250mg per pair of ampoules

4.2.3 Guidance for administration:

4.2.3.1 I.V. Pabrinex

- Equal volumes of the contents of ampoules number 1 and 2 should be added to 50-100ml of sodium chloride 0.9% or glucose 5% and administered over 15-30 minutes

4.2.3.2 I.M. Pabrinex

- 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 syringe to mix them just before use, then injected slowly high into the gluteal muscle, 5cm below the iliac crest.
- Licensed practice is to administer a **single** 7ml injection unless patient preference/clinical need requires splitting the dose. For guidance on best

practice for administering I.M Pabrinex between 2 sites see appendix 2 - Flow chart for Guidance on Best Practice for Administering Divided Doses of Pabrinex

4.2.4 Repeated injections of preparations containing high concentrations of thiamine may give rise to anaphylactic shock. The incidence of anaphylactic reactions to injectable thiamine preparations has been quoted as 4 per million pairs of I.V. ampoules sold in the UK and 1 per 5 million intramuscular ampoules sold in the UK. These are reports to the Committee on Safety of Medicines on Parentrovite (Cook & Thomson, 1997) and are far lower than the incidences reported for streptokinase or penicillin.

4.2.5 All locations should ensure that facilities for treating anaphylaxis are readily available when Pabrinex is administered. See Anaphylaxis policy. All staff administering Pabrinex must have attended anaphylaxis training.

4.2.6 Selection of either I.V. or I.M. Pabrinex will depend on the setting. For example A&E and medical wards will have easier access to the I.V. route whereas in psychiatric wards the I.M. route will be more often used

4.2.7 **Prophylactic treatment** for Wernicke's Encephalopathy should be:

- **1 pair Pabrinex ampoules IV or IM daily for 3 days**

4.2.8 If the patient can manage oral therapy after three days of I.V. or I.M. Pabrinex then oral thiamine should be started at a dose of 50mg three times daily. This should be continued for at least three months in abstinent patients with a well balanced diet or indefinitely in those patients who continue to use alcohol or who have poor nutritional intake.

4.2.9 If the patient is unable to manage oral therapy then ONE pair of Pabrinex ampoules daily should be continued.

4.2.10 **Therapeutic treatment** for Wernicke's encephalopathy should be:

- **2 pairs Pabrinex I.V. or I.M. three times daily for 3 days**

4.2.11 If there is no response to this then discontinue Pabrinex

4.2.12 If response is shown to Pabrinex then this should be continued at a dose of ONE ampoule daily for five days or until clinical improvement ceases

4.2.13 Oral thiamine should then be commenced as detailed in 4.2.7

5. *Related Documents*

5.1 Flowchart for Thiamine Supplementation for Alcohol Dependent Patients

5.2 Flowchart for Guidance on Best Practice for Administering Divided Doses of Pabrinex

6. *References*

6.1 Lingford-Hughes A, Welch S, Nutt DJ. Evidence-based guidelines for the pharmacological management of substance misuse, addiction and co-morbidity: recommendations from the British Association for Psychopharmacology. *J Psychopharmacology* 2004; **18**:293-339

6.2 Thomson A, Cook C, Touquet R *et al*. The Royal College of Physicians Report in alcohol: Guidelines for managing Wernicke's encephalopathy in the accident and emergency department. *Alcohol Alcohol* 2002; **37**: 513-521

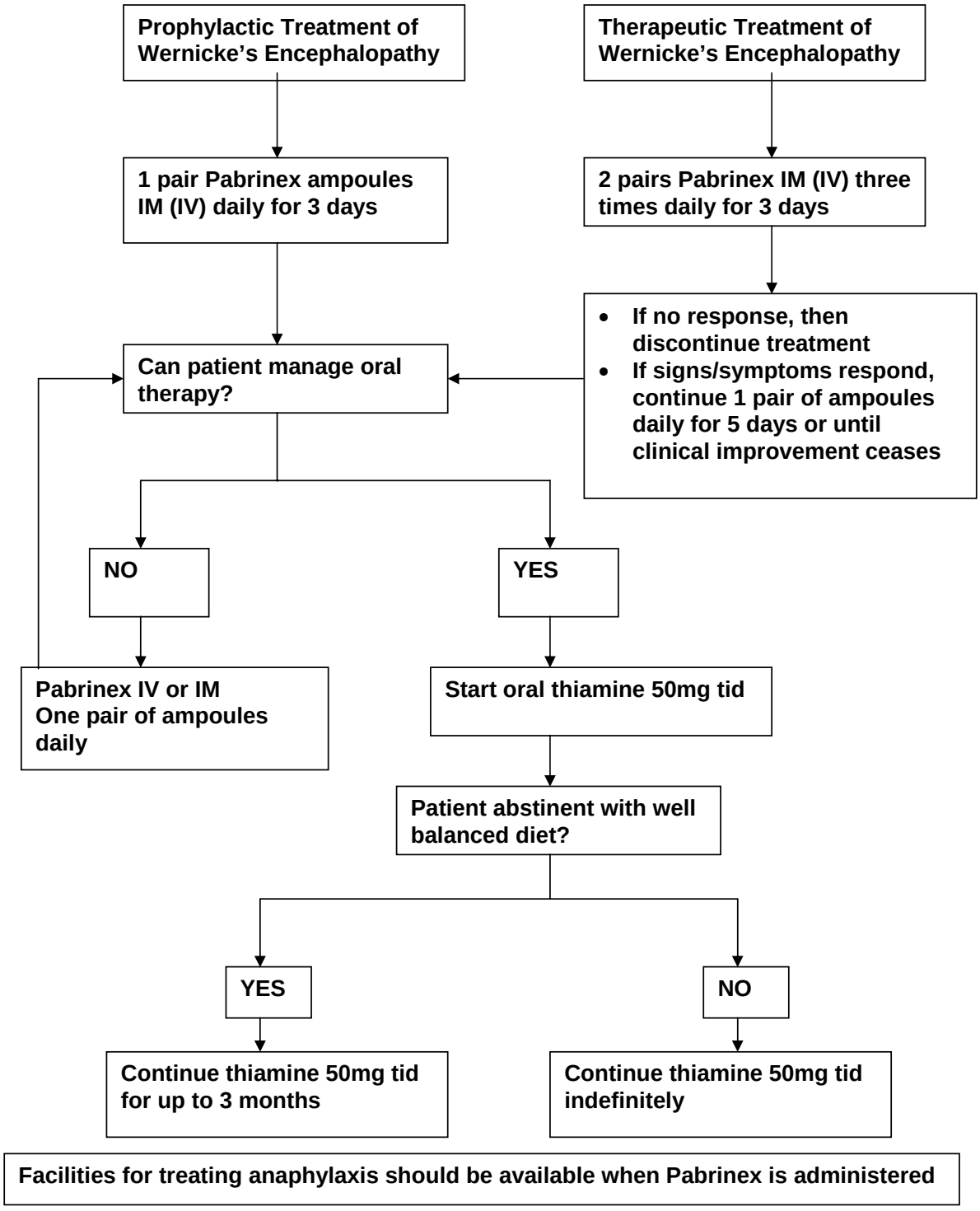
6.3 Bazire S. Norfolk and Waveney Mental Health Partnership NHS Trust. 2006; GUIDELINES FOR VITAMIN SUPPLEMENTATION FOR IN-PATIENT ALCOHOL DETOXIFICATION USING PARENTERAL "PABRINEX"

6.4 McIntosh c, Kippen V, Hutcheson F, McIntosh A. Parenteral thiamine use in the prevention and treatment of Wernicke-Korsakoff syndrome. *Psychiatric Bulletin* 2005; **29**, 94-97

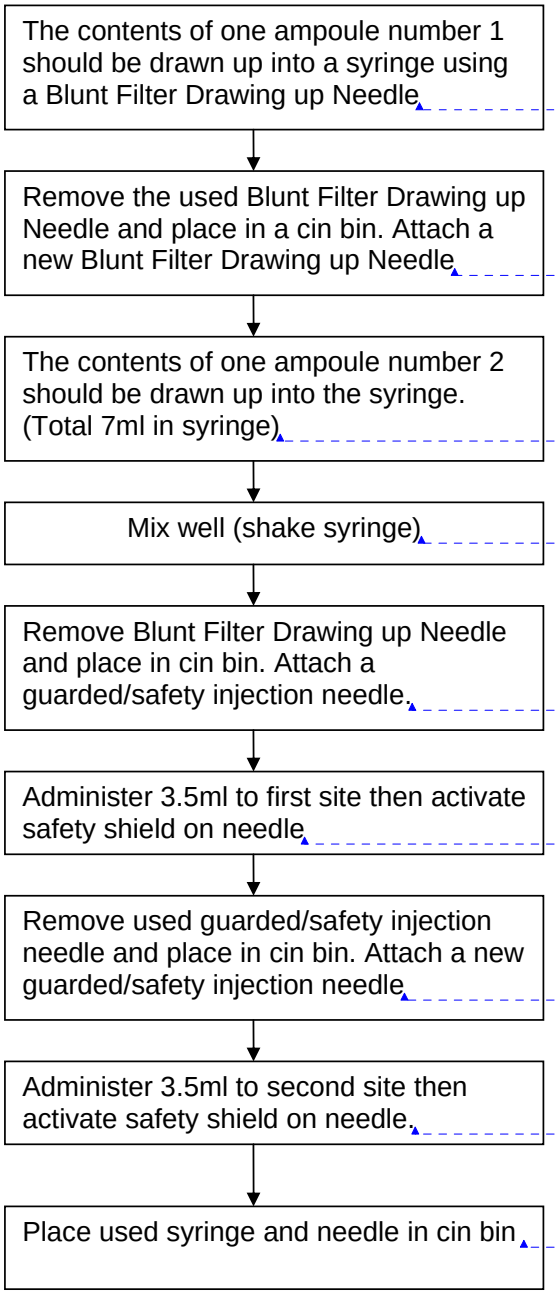
6.5 McEwan T. Wernicke-Korsakoff Syndrome and Thiamine Supplementation. *Tayside Prescriber* May 2006. Issue 91

6.6 Association of the British Pharmaceutical Industry (ABPI),2006. *Medicines Compendium*. Leatherhead:DataPharm Communications.

FLOWCHART FOR THIAMINE SUPPLEMENTATION FOR ALCOHOL DEPENDENT IN PATIENTS



Flowchart for Guidance on Best Practice for Administering Divided Doses of Pabrinex



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