08 - Lithium toxicity

Lithium toxicity

282 The Maudsley® Prescribing Guidelines in Psychiatry CHAPTER 2 Formulations There is no clinically significant difference in the pharmacokinetics of the two most widely prescribed brands of lithium in the UK: Priadel and Camcolit. In other countries, standard lithium carbonate tablets are often given twice or three times daily. The amount of elemental lithium varies by salt used. ■ ■Lithium carbonate 400mg tablets each contain 10.8mmol lithium. ■ ■Lithium citrate liquid is available in two strengths: ■ ■5.4mmol/5mL (equivalent to 200mg lithium carbonate). ■ ■10.8mmol/5mL (equivalent to 400mg lithium carbonate). Lack of clarity over which liquid preparation is intended when prescribing can lead to the patient receiving a sub-therapeutic or toxic dose. Liquid preparations need to be given 12-hourly. Adverse effects Most adverse effects are dose- and plasma level-related. These include mild gastrointestinal upset, fine tremor, polyuria and polydipsia. Polyuria may occur more frequently with twice daily dosing.42,43 Propranolol can be useful in lithium-induced tremor. Some skin conditions such as psoriasis and acne can be aggravated by lithium therapy. Lithium can also cause a metallic taste in the mouth, ankle oedema and weight gain. Lithium can cause a reduction in urinary concentrating capacity – nephrogenic diabetes insipidus – hence the occurrence of thirst and polyuria. This effect is usually reversible in the short to medium term, but renal effects may be irreversible after long- term treatment (>15 years).44 Lithium treatment can also lead to a reduction in the glomerular filtration rate (GFR) although the magnitude of the risk is uncertain.44 Lithium levels of >0.8mmol/L are associated with a higher risk of renal toxicity and prolonged lithium treatment of course requires regular monitoring of kidney function.45 Hypertension and a diagnosis of bipolar disorder worsen the risk of lithium-related chronic kidney disease.46 In the longer term, lithium increases the risk of hypothyroidism;47 in middle-aged women the risk may be up to 20%.48 A case has been made for testing thyroid autoantibodies in this group before starting lithium (to better estimate risk) and for performing thyroid function tests (TFTs) more frequently in the first year of treatment.49 Hypothyroidism is readily treated with thyroxine. TFTs usually return to normal when lithium is discontinued. Lithium also more rarely causes hyperthyroidism.50 Hyperparathyroidism causes hypercalcaemia in about 4% of patients51 and calcium levels should be monitored in patients on long-term treatment.50,52 Clinical consequences of chronically increased serum calcium include renal stones, osteoporosis, dyspepsia, hypertension and renal impairment. Lithium toxicity Toxic effects reliably occur at levels >1.5mmol/L and usually consist of gastrointestinal symptoms (increasing anorexia, nausea and diarrhoea) and CNS effects (muscle weakness, drowsiness, confusion, ataxia, coarse tremor and muscle twitching).53

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