Lithium

UKAS MEDICAL 7880 Accredited to ISO 15189:2012

Synonyms	Priadel, Camcolit, Liskonum
Clinical Indication	Lithium is used in the prophylaxis of mood disorders, specifically depressive illness such as bipolar. Concentration monitoring is essential when therapy is initiated. For individual patients, serum concentration and dose are linearly related which makes dose adjustment easier. Once therapy is established, routine monitoring is advocated at 3 to 6 monthly intervals. Thyroid function and creatinine should also be measured at least annually. **Drug Kinetics:** Peak absorption occurs within 2-4 hours after oral dose, with complete absorption after 8 hours. Lithium is virtually unbound to plasma proteins and is freely filtered by the glomerulus where it is reabsorbed by the same mechanism as sodium in the proximal tubule. Half-life varies with age from 8-20 hours in younger patients with normal renal function, increasing to 30-40 hours in the elderly or in patients with impaired renal function. **Toxicity:** Concentrations above 1.4 mmol/L may exert nephrotoxic effects, which leads to decreased elimination and serum levels rise still further. Lithium concentrations above 2.5 mmol/L are associated with significant mortality, especially if they arise as a result of gradual build-up on regular therapy rather than acute overdose. **Overdose:** In acute cases measure the lithium level at 6 hours and repeat 6-12 hourly. For acute on chronic or chronic accumulation measure the serum lithium concentration immediately and at 6 hours, then repeat 6-12 hourly. An information sheet is available from National Poisons Service (Toxbase).
Part of Profile / See Also	
Request Form	Combined Pathology manual Blood form or ICE request. Please state time after last dose on request form.
Availability / Frequency of Analysis	On request during routine hours. Laboratory must be contacted regarding urgent requests.
Turnaround Time	Same Day
Patient Preparation	Samples should be taken 12 hours after last dose. Steady state levels are achieved 2-5 days following a change in dose.
Sample Requirements	**Do not use green top (lithium heparin) tubes.**
Specimen Type	Serum
Volume	2 ml
Acceptable Containers	 Yellow top (SST) tube Plain serum samples may be used.

Reference Range & Units	0.4 to 1.0 mmol/L Effective prophylaxis can be achieved in most patients with levels of 0.5 to 0.8 mmol/L at 12 hours post dose.
Interferences	
Interpretation & Clinical Decision Value (if applicable)	**Green top lithium heparin tubes should never be used.** Critical phoning limit >1.5 mmol/L
References	Reference: Pathology Harmony Group, Clinical Biochemistry Outcomes, January 2011 (www.pathologyharmony.co.uk)
Test code	LI
Lab Handling	Analysed from primary tube and stored at 4°C. Serum stable for 7 days at 4°C.