

## Hypercalcaemia in Primary Care

Mild to moderate hypercalcaemia (<3.0mmol/L) may be asymptomatic. Symptoms of polyuria, thirst, anorexia, weakness, nausea and vomiting become more likely as serum calcium rises from 3.0 to 3.5 mmol/L. Hypercalcaemia should be part of the investigation of unexplained deterioration in renal function or dehydration. Very high serum calcium is most often due to neoplastic disease, but other causes are possible.

90% of hypercalcaemia is due to primary hyperparathyroidism or malignancy<sup>1</sup>.

### Urgent Action Required:

- If serum calcium is  $\geq 3.5$ mmol/L or  $\geq 3.2$ mmol/L with symptoms, consider admission for ECG, intravenous fluid therapy, and possibly intravenous bisphosphonates.
- If calcium is  $\geq 3.0$  mmol/L, arrange a prompt repeat and check PTH, to confirm and distinguish the 2 most likely causes – malignancy and primary hyperparathyroidism. PTH analysis requires a separate EDTA tube, with prompt delivery to the laboratory.

### Further Investigation:

- History should include any symptoms and duration, as well as symptoms that may be attributed to an underlying cause e.g. weight loss
- Family history of hypercalcaemia should be noted
- Drug history should include over-the counter supplements and preparations containing calcium and vitamin D
- Examination should include assessment of cognitive function, fluid balance status and signs of an underlying cause
- U&E, LFTs, and phosphate should be measured on serum (yellow top tube), and FBC and PTH on EDTA tubes. Note that 2 EDTA tubes needed if FBC and PTH requested.

### Interpretation and Further Action:

- A normal or raised PTH in the presence of hypercalcaemia indicates likely primary hyperparathyroidism (consider also tertiary hyperparathyroidism and familial hypocalciuric hypercalcaemia (FHH))
- Patients with suspected primary hyperparathyroidism or FHH should be referred to endocrinology
- A low PTH suggests a non-parathyroid cause e.g. malignancy, vitamin D intoxication and rarer causes (contact duty biochemist to discuss)

1. Walsh J, Gittoes N, Selby P, the Society for Endocrinology Clinical Committee. Society for Endocrinology Endocrine Emergency Guidance: Emergency management of acute hypercalcaemia in adult patients. Endocrine Connect 2016 vol 5, no. 5, G9-G11 published under Creative Commons 4.0 license (<http://www.endocrineconnections.com/>). Accepted for publication 3rd August 2016