

## Hypercalcaemia <sup>17, 23</sup>

### Introduction

- Affects up to 10% of patients with cancer
- Most commonly seen in breast, lung, renal carcinoma and myeloma
- Frequently missed; consider in unexplained vomiting or confusion
- Some cases due to tumour secreting parathyroid hormone like substance
- Patient may not have demonstrable bone metastases

### Symptoms and Signs

1. **Early symptoms are non-specific:** lethargy, malaise, anorexia
2. Thirst, polyuria, dehydration
3. Nausea and vomiting, constipation
4. Confusion
5. **Later features:** drowsiness, fits, coma

### Investigation

Serum calcium (corrected for serum albumin)  
Urea and electrolytes

### Management may include

- Pts with rising **Ca <3.0** who are not symptomatic push oral fluids & recheck Ca
- **Treat patients who are symptomatic with Ca >2.8**
- **Discontinue any medication which promote hypercalcaemia** e.g. thiazide diuretic, vitamin D and calcium supplements
- **Rehydration** – Usually 2 litres of 0.9% saline but depends on clinical condition
- **Correct hypokalaemia**
- **Bisphosphonate** – e.g. Pamidronate or Zoledronic acid in iv normal saline

Corrected Ca (mmol/l)	<3.0 if symptomatic	3.0-3.5	3.5-4.0	>4.0
Dose of Pamidronate	30mg	60mg	90mg	90mg
Dose of Zoledronic acid	4mg	4mg	4mg	4mg

<b>Pamidronate:</b>	Infuse in sodium chloride 0.9% (60mg in at least 250ml) at max rate of 60mg/hr (No dose reduction in renal impairment but max infusion rate is 20mg/hr) <b>Maximum dose per treatment course is 90mg</b>
<b>Zoledronic acid:</b>	Infuse 4mg dose in 50ml sodium chloride 0.9% over at least 15 minutes (No dose reduction in mild and moderate renal impairment, but not recommended in severe impairment)

### Follow up

Recheck serum calcium after treatment (1-5 days.) If still raised seek advice  
When calcium level normalised patient should have level checked fortnightly

### Outcome

About 70% of patients respond.

Average duration of response is 3-4 weeks

Prognosis depends on whether the underlying tumour can be treated.

Ensure patient is followed-up after treatment.

For recurrent Hypercalcaemia consider maintenance oral Bisphosphonate or intermittent IV Pamidronate/Zoledronic acid`