

Treatment of Hypercalcaemia of Malignancy

Protocol

This document can only be considered current when viewed via the Trust intranet/internet. If this document is printed or saved to another location, you are advised to check that the version you use remains current and valid, with reference to the review due date

1.0 Document Control

Document Author		Supportive, Palliative and End of Life care team/AOS-Katherine Michaels CNS		
Lead Owner		Dr Charlie Davis		
This Version	V2		Status	Final
Replaces	Current protocol 1 Aug 2019			
Approval	Date	17/2/22	Where	CSSS Governance
Ratification	Date	17/2/22	Where	CSSS Governance
Date of issue	17/2/22		Review date	17/2/25
Applies to	All adults with hypercalcaemia thought to be related to malignancy		Exclusions	Children, hypercalcaemia of non-malignant cause.

CONTENTS

2.0	KEY STEPS	2
3.0	INTRODUCTION	3
4.0	ROLES AND RESPONSIBILITIES	4
5.0	PROCESS DESCRIPTION	4
6.0	TRAINING/COMPETENCE REQUIREMENT	4
7.0	USEFUL CONTACTS	4
8.0	REFERENCES	5

2.0 KEY STEPS

Hydration alone is not sufficient to achieve and maintain normocalcemia in cancer patients.

- Without anticancer treatment hypercalcemia will likely recur within 2 to 4 weeks
- The bisphosphonate treatment may need to be repeated
- For patients with a previously diagnosed malignancy ensure that the relevant Oncology/ Haematology Consultant is informed of the patient's admission
- Osteonecrosis of the jaw (ONJ) may occur with IV bisphosphonate use

Treatment: Zoledronic acid is the bisphosphonate of choice. Give in 100ml N.Saline over 15 mins.

Zoledronic Acid: 4mg in CrCL above 60ml/min Reduce dose to 3.5mg if CrCl is 50-60ml/min Reduce dose to 3.3mg if CrCl is 40-50ml/min Reduce dose to 3.0mg if CrCl is 30-40ml/min	If Crcl <30ml/min use ibandronic Acid 2mg iv in 500ml 0.9% N.Saline over 60 mins
For patients with hypercalcemia in whom bisphosphonates are contraindicated (eg, due to severe renal impairment), denosumab can be administered concurrently with calcitonin. Please seek expert Acute oncology or endocrinology advice.	

Level of Hypercalcaemia	Intervention needed	When to recheck calcium
-------------------------	---------------------	-------------------------

Asymptomatic Hypercalcaemia	1. Drink 6-8 glasses of water per day 2. Stop drugs which either contain calcium, inhibit urinary calcium excretion e.g. thiazides or decrease renal blood flow e.g. cimetidine, NSAIDs, Retinoids	If become symptomatic
ALL Patients with SYMPTOMATIC hypercalcaemia. Usually above 3mmol/L, may be symptomatic in lower levels depending on speed of onset and individual sensitivity. Must treat all with calcium over 3.5mmol/L	1. Safe Rehydration to euvolaemia using Normal Saline, aim urine output 100-150mL/hr 2. Stop drugs which either contain calcium, inhibit urinary calcium excretion e.g. thiazides or decrease renal blood flow e.g. cimetidine, NSAIDs, Retinoids 3. Renal function adjusted bisphosphonate e.g. Zolendronic	7 days post treatment, if refractory repeat bisphosphonate (day case) and for oncology and/or endocrinology review

Following Bisphosphonate Administration

- Recheck U&Es
- If corrected calcium remains elevated 7 days post treatment repeat the bisphosphonate dose safely, do not repeat treatment earlier than 7 days.
- Where hypercalcaemia is refractory discuss with endocrinology, plan to re-check or advise GP to re-check corrected calcium 3 weeks after treatment

3.0 INTRODUCTION

- Hypercalcaemia is one of the most common life threatening disorders associated with malignancy and affects between 10-30% of cancer patients
- More commonly affects people with *multiple myeloma, breast cancer, non-small cell lung cancer and squamous cell carcinomas*
- Symptoms of hypercalcaemia are caused by abnormalities in the ionised fraction of the plasma calcium concentration; it is not always associated with bone metastases.
- The symptoms of hypercalcaemia are unpleasant and reversible. Treatment according to these guidelines will be appropriate for most patients and can dramatically improve quality of life in advanced malignancy
- Hypercalcaemia is an indicator of active disease and may suggest a need to review current cancer therapy
- If calcium normalises but symptoms persist another cause should be sought
- Recurrent hypercalcaemia, where the treatment interval is only weeks and/or there is limited symptomatic improvement, may point to a pre-terminal event. It may therefore be inappropriate to carry out repeated blood tests or to treat the hypercalcaemia.
- **Assessment of each patient on an individual basis is necessary to ensure appropriate treatment**

SIGNS and SYMPTOMS: One or more of the following may present:

General	Malaise & fatigue	Cardiac	Bradycardia
---------	-------------------	---------	-------------

	Weight loss Dehydration (may be extreme) Pruritus Thirst		Wide T waves Atrial or ventricular arrhythmias Prolonged P-R interval Short QT
Gastrointestinal	Constipation Anorexia Nausea/ vomiting Paralytic ileus	Neurological	Muscle weakness Drowsiness &/or confusion Hyporeflexia Seizure, Coma
Musculo-skeletal	Generalised bone & joint pain	Renal	Polyuria Renal failure

4.0 ROLES and RESPONSIBILITIES

Protocol to be reviewed through another audit cycle in 2023 by the palliative care team or acute oncology service. Protocol can be used in all SFT settings of care with appropriate skills and equipment.

5.0 PROCESS DESCRIPTION

See tables and advice above.

6.0 TRAINING/COMPETENCE REQUIREMENTS

Clinical ability to diagnose, treat and administer medication when needed.

7.0 USEFUL CONTACTS

- Acute haemato-oncology team at SFT via bleep 3606
- Acute oncology team at YDH- 07789615167
- Palliative Care Team at SFT via bleep 2014 or ext 2656
- Palliative Care Team at YDH- 07825174612 or ext 6012

8.0 REFERENCES

<https://www.uptodate.com/contents/treatment-of-hypercalcemia#H3776193842>
 NICE guidance- December 2014
 Doyle E D et al (1998) Oxford Textbook of Palliative Medicine
 Twycross R (1997) Symptom Management in Advanced Cancer
 Binns A and Gurney (2004) Update on Hypercalcaemia in Malignancy
 Kaye P (1994) A-Z of Hospice and Palliative Medicine Protocol for the Diagnosis & Management of Possible or Diagnosed Cancer Associated Hypercalcaemia
 Regnard FB & Tempest S (1998) A Guide to Symptom Relief in Advanced Cancer
 Avon, Somerset, Wiltshire Cancer Services Network guidelines (2010) The Palliative Care Handbook- advice on clinical management in palliative care patients
 Palliative Care Formulary (2016)