PERTH THYROID CANCER CLINIC

DOCTOR INFORMATION: MANAGEMENT OF PATIENTS WITH CKD UNDERGOING PARATHYROIDECTOMY

Paradigm for Surgery

Decision for surgical parathyroidectomy should be made by the treating renal physician, considering the clinical benefit and risks for an individual patient.

- All advanced CKD patients are considered for subtotal parathyroidectomy and without the need for Central Venous Catheter (CVC) as default; subject to variation with Consultant to Consultant communication for any at risk patients.

- Special considerations should be given for remote and regional patients (same day workup completion), patients on home dialysis (HD and PD), lack of venous access, compliance and others.

Peri-Operative Preparation

Pre-operative Medication Adjustments (Surgeical Team):

- Cease: Cinacalcet (Sensipar®) at lease one week prior to surgery

- Continue: Regular phosphate binders

- PRELOAD
    - Oral Calcitriol: start or increase dose of Calcitriol to 2.0mcg daily (either as single dose or divided doses) orally for one week prior to surgery unless the adjusted serum calcium is >2.7mmol/L on a recent blood test (preferably within 7-14days).

- Inform date of surgery to patient and the renal team; and contact CNS of the dialysis unit for preoperative dialysis planning (home or hospital).

Day of Surgery:

- Check biochemistry on day of surgery for: corrected Calcium (Ca), Phosphate (PO4), intact parathyroid hormone (iPTH), Magnesium, Vitamin D, EUC

- Intraoperative insertion of Central Venous Catheter (CVC) should be considered in selected patients who are at high risk for postoperative hypocalcaemia, have poor venous access, unplanned surgery without preloading, anticipated significant difficulties for postoperative blood sampling and deemed necessary for urgent intravenous (IV) access.

- TARGET
    - Corrected serum calcium within LOW normal range 2.2 – 2.4 mmol/L following parathyroidectomy

Post-operative medications to be charted by Medical Officer:

- **Oral Calcitriol:** initiate at 0.5mcg (0.25mcg capsules x 2) TDS then increase, if required, to a maximum of 1.5mcg (0.25mcg x 6) TDS gradually.

- **Oral Calcium:** initiate SandoCal/CalSource®(calcium effervescent 1000mg tablet) at least x 1 TDS given away from meals then increase, if required or as tolerated, to a maximum of 3 tablets TDS

- **Continue usual calcium or non-calcium phosphate binders**: Prescribed with meals, if serum phosphate (>1.6mmol/L)

- **Oral Magnesium** (if hypomagnesemic): Magnesium 500mg (1.64mmol) tablet x 2 BD

Biochemical Monitoring Schedule

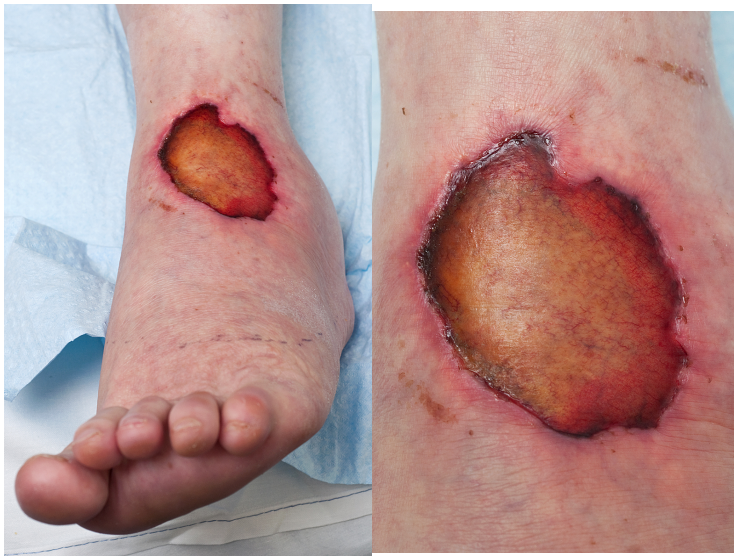
Day	Investigations required:	Treatment required:
Immediate Postoperative	Ca, Mg, iPTH, EUC	
Postoperative	Ca, PO_4, Mg, EUC	Recommend check every 6hrs for 48hrs postoperatively
48 hrs post-operatively until discharge OR 12hrs post cessation of IV Calcium replacement	Ca, Mg, PO_4, EUC	Twice daily until stable low normal Ca for 24 hours on oral supplements alone; - then once daily till discharge

***EUC (electrolytes, urea, creatinine)**

Indications for starting IV Calcium

- Patient is symptomatic with hypocalcaemia
- **Corrected Serum Ca** on monitoring is:
    - <1.8 mmol/L AND/OR
    - 1.8 – 2.1 mmol/L and symptomatic of hypocalcaemia AND/OR
    - >2.1mmol/L and falling rapidly (>20% in 4-6 hours)
- Calcium gluconate is preferred agent over calcium chloride due to reduced toxic effects on peripheral and central veins.

NOTE: extravastation will lead to extensive tissue necrosis. Make certain cannula is not tissued. Never use foot vein.



INITIAL IV CALCIUM TREATMENT (Must be followed by maintenance infusion as per below)		
Solution: Calcium gluconate 10% Injection Ca gluconate monohydrate (1g/10 ml) (equiv. elemental Ca 2.2 mmol/ 10 mL)		
Indication	***Prescription***	***Follow up***
Only if corrected serum Ca <1.8 mmol/L and/or symptomatic hypocalcemia	20mL of 10% calcium gluconate in 50mL Normal Saline over 30 minutes	Repeat Ca in 2 hours post bolus or earlier if necessary

IV CALCIUM MAINTAINANCE INFUSION: (MUST BE administered using an infusion pump via a CVC)		
Solution: 60 ml of 10% calcium gluconate (6g) in 250mL of Normal Saline [0.426 mmol/10 ml solution] (total volume 310mL)		
Initial infusion rate	20 ml/ hr	Repeat Ca in 2 hours

FOLLOW UP INFUSION RATES BASED ON SERUM CALCIUM MONITORING

Indication	***Prescription***	***Follow up***
Corrected serum Ca: <1.8mmol/l and/or symptomatic hypocalcaemia	20mL of 10% calcium gluconate (2g) in 50mL Normal Saline over 30 minutes **AND** increase infusion rate to 30 ml/hr **AND** increase oral calcium supplements	Repeat Ca in 2 hours
1.8 - 2.1mmol/l	30ml/hr **AND** increase oral calcium supplements	Repeat Ca in 4 hours
2.1 - 2.2mmol/l	Continue at current rate **AND** continue oral calcium supplements	Repeat Ca in 4 hours
> 2.2mmol/l	Cease infusion **AND** continue oral calcium supplements	Repeat Ca in 4 hours

Follow up Post Discharge

Requirements for calcium supplements and calcitriol upon discharge are likely to vary considerably between individual patients and must be closely monitored.

POST DISCHARGE BIOCHEMICAL MONITORING SCHEDULE:

Post discharge– 1 week	Ca, PO_4, EUC	3 times a week (Predialysis for HD pts) until Ca is within the low normal range
1 week – 1 month	Ca, PO_4	At least weekly until within low normal range
1 month – 2 months	Ca, PO_4	At least fortnightly unless outside the low normal range
2 months -12 months	Ca	At least monthly unless outside the low normal range

For Home Haemodialysis patients: The first HD session post discharge must be preferably organised within the incentre unit with formal review of patient, results and discharge regimen prior to discharge.

Peritoneal dialysis and renal transplant patients: Arrange biochemical monitoring with Home Therapies, Senior Renal Registrar or usual Renal Physician.