CLINICAL GUIDELINE

Post-op Thyroidectomy Management Guideline

Children's MINNESOTA

Aim: To standardize the management of children following partial or total thyroidectomy.

PACU
- Indications and pre-op cares (see **Note 1**)
- Post-op cares per ENT and anesthesia
- STAT PTH and iCal levels while in PACU

→ Surgeon concerns for significant parathyroid disruption OR iCal level < 2.0 mEq/L OR symptomatic hypocalcemia (**Notes 2, 3**)

→ Yes →

Admit to ICU
- Intensivist to co-manage with ENT/Endo
- ENT to sign-out to ICU team from PACU

Off Guideline

↓ No

Admit to med-surg
- Hospitalist service to co-manage with ENT and Endo
- ENT to sign-out to hospitalist team from PACU
- Hospitalist to consult Endo on POD1 AM for med management and discharge planning or sooner if clinical concerns for persistent hypocalcemia
- Post-op pain management*

↓

Initiate medications for all post-op patients:
- Calcitriol 0.5 mcg PO BID
- Calcium carbonate: 50 mg/kg/day of elemental calcium PO divided Q6H (max dosage 500 mg elemental calcium per dose – 2.5 tabs of regular strength TUMS) - use caution with calcium dosing units.
- Levothyroxine 100 mcg/m2/day PO QD
- Vitamin D3 2000 IU PO QD

↓

Begin monitoring for hypocalcemia (Note 2)
See page 2

***Post-op pain recommendations**

Inpatient: Scheduled acetaminophen, PRN NSAID (ketorolac or ibuprofen), PRN oxycodone

After discharge: PRN acetaminophen and ibuprofen

EXCLUSION CRITERIA
- ICU admission
- Oncologic indication for surgery (typically admit to Heme/Onc for management)

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Aim: To standardize the management of children following partial or total thyroidectomy.

Monitoring for post-op hypocalcemia

After initial levels in PACU or when re-entering after "Management of hypocalcemia"

Step 1: iCal Q4H x3 **(Note 4)**

Calcium levels remain adequate? (**Note 4**) — No → **Management of hypocalcemia**

Yes

Step 2: iCal Q6H x 2

Calcium levels remain adequate? (**Note 4**) — No → **Management of hypocalcemia**

Yes

Step 3: iCal Q12H x 2

Calcium levels remain adequate? (**Note 4**) — No → **Management of hypocalcemia**

Yes

Step 4: iCal QDay if remains inpatient → **Discharge criteria and follow up recommendations** See Page 4

Management of hypocalcemia

Place patient on telemetry monitoring until levels have stabilized (**Note 5**)

iCal < 1.8 mEq/L OR total calcium < 8 mg/dL

Obtain 12 lead EKG **(Note 5)**

Administer calcium chloride 10 mg/kg IV (max dose 500 mg, **Note 6**)

Repeat iCal 1 hour after administration

iCal 1.8-2.0 mEq/L OR total calcium 8-9 mg/dL AND symptoms of hypocalcemia

Obtain 12 lead EKG

Abnormal EKG **(Note 5)**

Normal EKG

Increase calcium carbonate to 75 mg/kg/day of elemental calcium PO divided Q6H (max dose of 500 mg elemental calcium). If already at max dose, no adjustments needed.

Repeat iCal in 3-4 hours

If adequate calcium level (**Note 4**), return to **Step 1** of "Monitoring for post-op hypocalcemia" algorithm.

If not adequate, return to "Management of hypocalcemia" algorithm.

If requiring more than one IV calcium replacement or oral supplement adjustment, discuss with Endo.

If requiring IV calcium chloride administration more frequently than Q3H, discuss transfer to PICU.

CLINICAL GUIDELINE

Post-op Thyroidectomy Management Guideline Notes

Children's MINNESOTA

NOTE 1

Indications

Common indications for pediatric total or subtotal thyroidectomy:

- Thyroid nodules, certain goiters
- Failed medical management of Graves' disease, Hashimoto's
- Thyroid cancer

Pre-op Optimization

Recommended initiation of calcitriol, calcium, and vitamin D3 supplementation 3 days prior to procedure (done by Endo):

- Calcitriol 0.5 mcg PO BID
- Calcium carbonate: 50 mg/kg/day of elemental calcium PO divided TID (max dosage 500 mg elemental calcium per dose)
- Vitamin D3 2000 IU PO QD

Continue supplementation until instructed to stop post-operatively.

NOTE 2

Symptoms of hypocalcemia:

- Tetany – perioral numbness, paresthesias, muscle cramps
- Laryngospasm
- Seizures
- Hypotension

NOTE 3

Risk factors for hypocalcemia:

- Neck dissection/lymph node exploration
- Low PTH post-op
- Younger age
- Previous hyperthyroidism

NOTE 4

Adequate calcium levels:

- iCal ≥ 2.0 mEq/L
- Total calcium ≥ 9 mg/dL
- iCal 1.8-2.0 mEq/L or Total calcium 8-9 mg/dL WITHOUT symptoms of hypocalcemia

iCals can be obtained via venipucture OR fingerstick draw.

If assessing calcium level via BMP/CMP, you must also consider if correction is needed for hypoalbuminemia:
Corrected calcium (mg/dL) = (0.8(normal albumin [g/dL] – serum albumin [g/dL])) + Serum calcium (mg/dL)*

NOTE 5

EKG changes from hypocalcemia*:

- Prolonged QTc
- Heart block, ventricular dysrhythmias (uncommon)

*If prolonged QTc, recommend repeat EKG once calcium levels have stabilized to demonstrate normalization. If EKG does not improve with calcium normalization, recommend discussion with cardiology. If any other EKG abnormality (i.e. heart block), recommend consultation with cardiology and PICU.

Calcium can be considered stabilized and telemetry can be discontinued after two iCals greater than 2.0 mEq/L.

NOTE 6

IV calcium chloride can be given on the med-surg floor via a PIV. For patients without central access (only PIV), calcium chloride dilute infusion (20 mg/mL) should be utilized to minimize vein irritation.

Max dose for IV calcium chloride on med/surg unit is 500 mg per dose.

Link to med administration guide on StarNet:
https://starnet.childrenshc.org/departments/Pharmacy/pediatric-iv-medication-administration-guidelines.pdf

Post-op Thyroidectomy Management Guideline Notes

Discharge criteria

- Stable calcium levels with no symptoms of hypocalcemia for 24 hours. If calcium levels remain low/borderline but meeting all other criteria, discuss possibility for outpatient lab monitoring with endocrinology.
- Pain managed with oral medications (After discharge: PRN acetaminophen and ibuprofen)
- Adequate oral intake
- Follow-up plan in place

Follow-up Recommendations

- Outpatient endo medications: Continue calcitriol, calcium carbonate, levothyroxine, and vitamin D3 as directed by endocrinology
- Typical clinic follow-up recommendations: 1 month endocrinology/thyroid nodule clinic, separate ENT follow-up at surgeon's discretion

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