Protocol for children going for parathyroidectomy

Background:

The diagnosis of primary hyperparathyroidism (HPT) is made when either symptomatic or asymptomatic patients are found to have hypercalcemia and elevated PTH levels. A PTH level that is not appropriately suppressed with a high-normal serum calcium level is consistent with primary HPT.

Preoperative imaging of patients with primary HPT has become important since localization of the abnormal parathyroid gland(s) can determine the operative approach for parathyroidectomy. preoperative localization study is the dual-phase technitium-99m sestamibi scan with single-photon emission computed tomography/computed tomography (SPECT/CT). Additional imaging options for preoperative localization include CT or magnetic resonance imaging (MRI).

Protocol:

Pre-operative care:

- On the night of the operation, to do baseline serum levels of parathyroid hormone, calcium, phosphate & vitamin D.
- Maintainace intravenous fluid of normal saline in dextrose 5%, to be continued till the child recovered from the operation.

Intraoperative PTH monitoring:

- Baseline PTH level is determined after induction of anesthesia, just prior to making an incision.
- PTH levels are checked again 5, 10, and 15 minutes after the affected gland has been removed.
- A fall of the serum PTH level to below 50% of the baseline value at any of these time points indicates a curative resection and the exploration is concluded.
- However, if the levels do not decrease by 50%, then another hyperfunctioning gland should be sought.

Please note that, In some cases, the first intra-operative PTH may increase above the baseline level, presumably due to manipulation of the gland during the exploration, that is why we need to repeat PTH as mentioned till we have 50% of parathyroid hormone level decrements. If didn't happened, please look for another affected parathyroid gland.

Post-operative care:

- As soon as child/ adolescent arrived to the ward, please do urgent serum calcium and parathyroid hormone immediately.
- Intravenous calcium gluconate 100-200 mg/kg/ day is added prophylactically to the maintainace fluid in the first 24 hours post-operative to avoid risk of transient hypocalcemia.
- Repeat serum calcium 6 hourly in first 24 hours post-operatively without repeating PTH level.
- In second day of operation, if no any Hypocalcaemic events, please discontinue intravenous calcium and fluid.
- Start prophylactic oral calcium carbonate (dose 200 mg/kg/day divided into 2-3 doses) together with one alpha vitamin D (0.05 microgram/kg/day) for 5-7 days (this can be given at home as majority of children discharged on the second day of operation if no any complications.
- Patient usually given 1 week appointment to pediatric endocrinology clinic with serum calcium, phosphate and parathyroid hormone to be checked prior to the visit.