Summary of Hungry Bone Syndrome after parathyroidectomy and CKD/nephrotic syndrome management in pregnancy

1. Uncontrolled secondary hyperparathyroidism is one of the reasons for epogen resistance in anemic patients on dialysis.
2. The effects of high levels of PTH on bone results in the high-turnover bone disease: osteitis fibrosa.
3. Low turnover disease or adynamic bone disease (ABD) is characterized by a low number of osteoblasts with normal or reduced numbers of osteoclasts.
4. Hypocalcemia is a powerful stimulus for PTH secretion and for parathyroid growth. The effects is mediated by the calcium-sensing receptor, and there is decreased expression of the calcium-sensing receptor in the hyperplastic glands in kidney failure
5. Hungry bone syndrome has no clear definition, but it usually refers to development of severe and prolonged hypocalcemia after parathyroidectomy. The risk factors for hungry bone syndrome: the gland size, pre-op hypocalcemia, elevated pre-op Alkaline phosphatase level, age.
6. Monitor hungry bone syndrome in ICU setting for at least 48 hours.
7. In Asia, parathyroidectomy is more popular and indicated when PTH level reaching 500-600. This is likely due to the cost effect compared to calcimimetics.
8. Parathyroid hyperplasia in the advanced stage of CKD is classified into two types, diffuse hyperplasia and nodular hyperplasia. Nodular hyperplasia has been considered to be the advanced type seen in patients with more severe hyperparathyroidism. And hyperparathyroidism will usually become refractory to medical therapy in nodule hyperplasia (Reference attached)
9. Very high dose of elementary calcium is needed for hungry bone syndrome. Around 20gm/day elementary calcium is used in our case.
10. Continuous high calcium bath dialysis is very useful.
11. Prophylactic administration of Calcium and / or Calcitriol might help alleviate the severity of Hungry Bone Syndrome
12. Tissue necrosis may exist in reimplanted parathyroid tissue following resection, which can leads to refractory hypoparathyroidism. Recombinant PTH (such as Natapara) can be used to treat this condition.
13. Non-dihydropyridine CCBs (verapamil, diltiazem) may be a reasonable therapeutic option for patients with diabetic kidney disease to decrease proteinuria, compared with dihydropyridine CCBs. However use of Non DHP CCB in pregnancy requires more cautions.
14. Theoretically, diuretics can be associated with potential harmful effects owing to the reduction of plasma volume, cardiac output, and uteroplacental perfusion. However, many studies did not find an increased risk of adverse effects, such as

birth defects, fetal growth restriction among neonates exposed to diuretics in utero.

15. Choose optimal indications for renal biopsy in pregnancy.