



Primary hyperparathyroidism in pregnancy

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Primary hyperparathyroidism is a disorder, in which parathormone is secreted excessively and it is associated with hypercalcemia. The cause of primary hyperparathyroidism is seen in 85% of parathyroid adenoma cases, in 4% of multiple adenoma cases, and in 10% of hyperplasia cases. The most common cause of hypercalcemia is hyperparathyroidism (1). Hypercalcemia is rare in pregnancy and the most common cause of it is primary hyperparathyroidism. In general, early primary hyperparathyroidism is rare in pregnancy. The incidence of primary hyperparathyroidism in pregnant women is estimated to be 8 per 100 000 per year (2). As primary hyperparathyroidism is asymptomatic in 80% of pregnant patients, it is difficult to diagnose it. Patients with hyperparathyroidism in the asymptomatic stage usually remain undiagnosed. When it becomes symptomatic, the most common symptoms would be gastrointestinal, musculoskeletal, and urinary tract symptoms. Hyperparathyroidism during pregnancy in more than two-thirds of cases causes significant morbidity in mothers and embryo.

Embryo problems include increased probability of abortion, severe intrauterine growth disturbance, and stillbirth. As parathyroid gland of the embryo is suppressed in pregnancy, after delivery at time of closing the umbilical cord, the calcium of the embryo blood is reduced progressively and the suppressed parathyroid gland of embryo might not be able to respond properly and the infant would suffer from seizure caused by hypocalcaemia and require long-term care. If mild to moderate hyperparathyroidism is not diagnosed during pregnancy, by observing the hypocalcaemia in the infant, the mother should be evaluated in this regard. Classic symptoms of hyperparathyroidism such as bone pain, bone fracture and kidney stone are more rarely seen during pregnancy in mother, and many patients are diagnosed with routine tests and blood calcium measurement.

Complications on hypercalcemia such as nausea, vomiting, lethargy and drowsiness might be attributed to hyperemesis gravidarum, unless these symptoms are

■ Implication for health policy/practice/research/ medical education

Hyperparathyroidism during pregnancy in most cases, causes significant morbidity in mothers and embryo. Thus, early diagnosis and treatment are important.

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examined due to severity. As calcium passes through the placenta during pregnancy and enters the bloodstream of embryo, hypercalcemia might not be severe. However, hypercalcemia may be exacerbated by PTH-related peptide (PTHrP) due to excessive breastfeeding after delivery.

Parathormone is not measured routinely in pregnant women. Diagnosis of hyperparathyroidism during pregnancy with high levels of calcium and serum PTH and the absence of other causes of hypercalcemia should be considered. Neck ultrasound is a selective imaging method during pregnancy to determine the location of the parathyroid adenoma. It has a sensitivity of 69% and a specificity of 94%. Most of parathyroid adenomas are located in the lower parathyroid gland. CT scan and scintigraphy during pregnancy is prohibited (3,4). In pregnancy, the neck MRI can be performed without any risk. Patients should be followed up when asymptomatic and serum calcium is lower than 12 mg/dL. It is recommended to use high levels of fluids and low levels of calcium. A symptomatic patient with serum calcium higher than 12 mg/dL requires accurate heart monitoring, and in addition to receiving adequate fluids, prescribing diuretics, bisphosphonates and calcitonin might be needed. If the clinical signs and hypercalcemia were not improved in the patients by these measures, an emergency parathyroidectomy in the second trimester (when organogenesis has been occurred and risk of early delivery caused by anesthesia is low) should be considered. Surgery in the third trimester is associated with high risk

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of preterm delivery (3,4).

Authors' contribution

All the authors contributed to the intellectual development of this paper. MB, SB and AZ prepared the draft. AHD edited the paper. MD finalized the manuscript. All authors read and signed the final paper.

Conflicts of interest

There was not conflicts of interest.

Ethical consideration

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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