**A series of 9 pregnancies with hyperthyroidism and Graves ’ disease:**

**fetal and maternal follow up. (BSIM, dec 2019)**

P. Delannoya, S. Grandfilsb, M-C Lebrethonc , F. Chantrained, C. Van Linthoutb, A. Beckersa And H. Valdes-Socina

aEndocrinology, CHU Liège; b Gynecology, CHU Liège; C Pediatry, CHU Liège ; Gynecology CHR Liège.

**Introduction:**

Graves’ disease (GD) is a hyperthyroid auto-immune disorder. The presence of thyroid stimulating antibodies (TSAb) may lead to hyperthyroidism, thyroid orbitopathy and pretibial myxedema. GD complicates approximately 0.2% of pregnancies, carrying a risk of fetal thyroid disorders due to the transplacental transfer of thyroid-stimulating/blocking antibodies and eventually the transfer of maternal anti thyroid drugs.

**Patients**

We report a series of nine pregnancies (six patients) with Graves’ Disease, TSAb and fetal repercussion. One patient had thyroidectomy, three were treated by I131 before pregnancy, and two were diagnosed during pregnancy both with cardiac failure and pulmonary hypertension due to thyrotoxicosis. Three patients presented graves ophtalmopathy.

The median age for pregnancies was 30 (28 – 33) years. The median age of gestation for the primary evaluation was 9 (7-29) weeks of gestation (WG).

The titer of TSAb are available only for five cases and during the first trimester the titer was in excess of three times the upper limit of normal. We observed a decrease of titer in three pregnancies with one normalization

The average gestational age at delivery in our series has been 36 to 37 weeks. Two patients were managed after term and their babies presented with neonatal thyrotoxicosis. Two fetuses presented a goiter that required cordocentesis, revealing hyperthyroidism. Readjustment or initiation of treatment with anti-thyroid drugs permit to normalize the fetal thyroid size. No malformations were noted after birth . Six babies presented neonatal thyrotoxicosis : five were treated by Strumazol and one by Propylthiouracil during few months.

**Discussion**

The fetal thyroid gland acquires the ability to synthesize thyroid hormones at roughly 12 weeks of gestation. Maternal TSAb may cross the placenta and stimulate the fetal thyroid gland, leading to excessive thyroid hormone secretion and goiter. Rarely, TSAb may have an inhibitory effect. Untreated GD hyperthyroidism is associated with maternal congestive heart failure, preeclampsia, prematurity, intra uterine growth restriction, malformation and stillbirth. The risk correlates with the TRAb titer (high if TRAb titers > 2.5 UI/L 1).

If this threshold is reached, a fetal thyroid ultrasound scanning is realized. When a goiter is observed (thyroid perimeter > P95), a fetal blood sampling can be consider to improve the fetal thyroid status.

Antithyroid drugs (ATDs) are the mainstay to treat fetal hyperthyroidism due to GD. ATDs also cross the placenta and are effective on fetal thyroid hormone production. Guidelines recommend the use of the lowest effective dose of ATDs to maintain maternal serum FT4 at or moderately above the upper limit if the reference range. TSH and thyroid hormones should be monitor every 2–4 weeks. After the completion of the first trimester, PTU can be switched for MMI or Carbimazol to decrease the risk of liver toxicity.

 **Conclusion**

GD during pregnancies must be closely monitored by a multidisciplinary team in order to improve maternal and fetal outcome.

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