Fetal Thyroid Disease

Thyroid stimulating immunoglobins (TSI) > 150% of normal or 3x upper limit of normal (UNC reference value ≤ 1.3)²

Yes

MFM Consult

- Document normal fetal heart rate each visit; every 2 weeks starting at 20 weeks
- Monthly ultrasound for growth and signs of fetal thyroid disease beginning at 26-28 weeks²
- If maternal disease not controlled, begin weekly BPP/NST at 32 weeks³

Fetal signs of:
1. Intrauterine growth restriction
2. Persistent tachycardia
3. Cardiomegaly
4. Hydrops
5. Goiter

Yes

Suspicions for fetal thyroid disease: consider PUBS if unsure of fetal thyroid status (check fetal TSH, fT4)⁶

High suspicion of fetal hypothyroid disease

Low suspicion of fetal thyroid disease

PUBS (check fetal TSH, fT4) and assess for other causes of hydrops / IUGR

Low TSH, High fT4

Fetal Hypothyroidism

Start maternal thioamides or increase current dose⁴

Repeat maternal fT4 every 2-4 weeks and titrate dose with goal of maternal fT4 in upper limits of normal range⁵

Stable fetal status

Yes

High TSH, Low fT4

Fetal Hypothyroidism

Decrease thioamides or intra-amniotic thyroxine 500 mcg every 2 weeks⁸

If needed:
1. Repeat PUBS every 2-4 weeks to evaluate therapy and monitor treatment⁹
2. Antenatal testing as clinically indicated

Notify pediatrician of maternal hyperthyroidism or elevated maternal TSI

No

No

Normal fetal thyroid — manage based on non-thyroid related diagnosis
References

1. Kilpatrick S. Umbilical blood sampling in women with thyroid disease in pregnancy: Is it necessary? *Am J Obstet Gynecol* 2003;189:1-2. TSAb should be done on women with history of treatment with $^{131}$I or with a previously affected neonate. PUBS should be offered to pregnant women with Graves’ disease if any one of the following are present: a) a history of a prior affected baby, b) a history of maternal $^{131}$I treatment and a high TSAb level (>5IU or >160%), c) the fetus displays fetal tachycardia, growth restriction, fetal goiter, hydrops or cardiomegaly.

2. Millar LK, Wing DA, Leung AS, Kooings PP, Montoro MN, Mestman JH. Low birth weight and preeclampsia in pregnancies complicated by hyperthyroidism. *Obstet Gynecol* 1984;84:946-9. Odds ratio for low birth weight (<2500g) is elevated in patients in patients who were hyperthyroid on presentation but became controlled during pregnancy OR 2.4 [1.4-4.1] and in women whose hyperthyroidism was not controlled OR 9.2 [5.5-16].

3. Davis LE, Lucas MJ, Hankins GDV, Roark ML, Cunningham FG. Thyrotoxicosis complicating pregnancy. *Am J Obstet Gynecol* 1989;160:63-70. Retrospective review of 60 pregnancies complicated by thyrotoxicosis showed 6 stillbirths and 1 mid-pregnancy loss; all in women in whom clinical euthyroidism was not achieved. Two were treated but had persistent thyrotoxicosis and 5 were not treated.


5. Mandel SJ, Cooper DS. The use of antithyroid drugs in pregnancy and lactation. *J Clin Endocrinol Metab* 2001;86:2354-9. When Graves hyperthyroidism occurs or recurs during pregnancy, an antithyroid drug should be given in the lowest dose necessary to maintain the woman’s serum free thyroxine concentration in the upper part of the normal reference range or just above this range.

fetal goiter) should be performed in women with uncontrolled hyperthyroidism or elevated TRAb levels. Cordocentesis is reserved for use in determining thyroid function status in presence of fetal goiter. MMI (dose up to 20-30 mg/d) and PTU (up to 300mg/d) as second line agent due to potential for hepatoxicity, are compatible with breastfeeding (take following a feeding and use in divided doses).

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Notification to Users

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities.

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