Introduction: The thyroid gland undergoes changes during pregnancy and the management of thyroid disease during pregnancy is essential. Disorders of thyroid gland are caused frequently by autoimmune reactions.

Objective: To identify a relationship between existing thyroid peroxidase auto antibodies (TPO -Ab) among pregnant woman and its relation with their outcome of pregnancy, morbidity of autoimmune thyroiditis in childbearing age of women, to justify screening, when would be the best time for doing it.

Material and Methods: The study (February 2012 - September 2013) included 220 pregnant, romanian women, ages 18 - 42. A medical examination was performed. For each subject 5ml venous blood samples were drawn, serum was separated. In screened patients, serum was saved at the initial blood draw for further testing. We used one-time screening using TPO Ab, one-time screening using TSH and FT4. Screening tests were added to the laboratory tests of the first prenatal visit. A cut off value of TPO-Ab of 100 IU/ml or less for TPO - Ab was considered as normal and more than 100 UI/ml was labeled as abnormal, considered positive. Statistically we used the Odds Ratio. The screening strategy used: If the TSH level was in normal/low, corresponding to a TSH <= 3 mU/ml), no further testing was performed. If the TSH level was midrange, i.e. 3-5 mU/ml, serum was tested for TPO - Ab. The subjects with positive TPO - Ab were followed and TFTs, thyroid function tests (TFTs: TSH and FT4) were made three times (including a 3-month postpartum visit). We also performed a cost-effectiveness analysis of screening pregnant women, with no known history of thyroid disease, in the first trimester. When probabilities were not available, they were estimated using clinical judgment.

Results At initial presentation all the women were euthyroid. 89.17% of the subjects had TPO -Ab level of less than 100 UI/ml (normal by cut off value). 11.0% had positive TPO - Ab level. The age group under 21 - 30 years (106 cases) was the largest, with 9.89% TPO-Ab positive. The complications were found to be more significantly raised among positive TPO Ab cases, when we analysed by parity and age of pregnant women at time of registration. We found a significant difference regarding outcome of abortion (p<0.001) and prematurity (p<0.05) between the two groups defined by TPO-Ab. A vast majority (92.6%) of the pregnant TPO-Ab negative women had a normal live birth. 39.0% of the pregnant women with raised TPO-Ab also had a normal live birth. (p<0.001). Prematurity was observed in 6.75% of patients with normal TPO-Ab value and in 22.05 % of patients with high TPO-Ab. The abortion rate was higher in the TPO-Ab positive group. The raised TPO-Ab were found to have higher risk of abortion (OR 32.8, 95% CI:5.47-196.62) and prematurity (OR 4.3, 95% CI: 0.96-19.22). A statistically significant difference (p<0.05) was found when we compared the pregnant status with normal TPO-Ab in outcome with the pregnant women with raised TPO -Ab for first pregnancy. Risk analysis for TPO-Ab showed that high level of TPO-Ab raised the risk of abnormal delivery (abortion, prematurity) in both primipara and multipara. Abnormal delivery risk for primipara with raised TPO -Ab was OR=56.9(CI: 4.32-76.49) for multipara OR=7.93 (CI: 1.54 - 22.73). Primipara and raised TPO-Ab levels had the highest abortion rate
In the group with normal levels of TPO-Ab we found no significant difference in prematurity outcome.

Conclusions

The prevalence rate of thyroid autoimmunity in young women seems high enough to justify the screening. Screening only high-risk women, however, would fail to diagnose women with thyroid disease. Screening pregnant women with TFTs in the first trimester of pregnancy is cost-saving compared with no screening.

Keywords pregnancy, outcome, cost-effectiveness TPO-Ab screening