Abstract

Background: The immunological, hormonal and metabolic changes occur during pregnancy and increase the risk of developing some diseases. The aims of this study were: to compare serum concentrations of antibodies against C1q component of complement (anti-C1q) and mannose-binding lectin (MBL) in pregnant women with autoimmune thyroid disease (AITD) and healthy pregnant women and to compare urinary iodine concentration (UIC), neonatal thyroid stimulating hormone (TSH) and other thyroid laboratory parameters in pregnant women with gestational diabetes mellitus (GDM) and healthy pregnant women.

Patients and methods: The “anti-C1q” study included 96 pregnant women with AITD and three control groups: 80 healthy pregnant women, 72 non-pregnant women with AITD and 72 healthy blood donors. The "MBL" study included 212 pregnant women with AITD and 80 healthy pregnant women, and the "urinary iodine concentration" study included 195 pregnant women with GDM and 88 healthy pregnant women. Anti-C1q and MBL concentrations were measured by ELISA, UIC by absorption spectrophotometry after previous alkaline demineralization, and other parameters by standard immunoassay.

Results: The anti-C1q and MBL serum concentrations were higher in pregnant women with AITD compared to controls. The anti-C1q concentrations were positively correlated with TSH concentrations and decreased after delivery in women with negative TPOAb. The serum concentrations of MBL decreased after delivery. UIC was lower in women with GDM than in the control group and corresponded with the iodine deficiency. The majority of pregnant women with GDM (78.97%) and almost half of controls (43.18%) had a mild iodine deficiency. Women with GDM had a higher prevalence of isolated hypothyroxinemia compared to controls (12.31% vs. 3.41%, P = 0.032). Also, the prevalence of neonatal TSH > 5 IU/l was 5.22% in newborns of women with GDM, it was signalling the iodine deficiency.

Conclusion: The pregnant women with AITD had higher serum concentrations of anti-C1q and MBL than the healthy pregnant women. Also, the pregnant women with GDM had more often iodine deficiency and isolated hypothyroxinemia.

Keywords: thyroid gland, autoimmune thyroid disease, pregnancy, urinary iodine concentration, gestational diabetes mellitus, immune system