SUMMARY

URINARY IODİNE LEVELS AND THYROİD FUNCTİON TESTS OF NEONATES AND THEIR MOTHERS IN AYDIN

Introduction and Aim: Iodine deficiency disorders are disorders causing some developmental and functional diseases which can be prevented with iodine prophylaxis. Iodine intake must be sufficient for maintaining normal thyroid functions of mother and fetus. In ınutero period and in the first three months after birth, which are critical periods for brain development, in case of iodine deficiency brain functions are influenced irreversibly. Iodine deficiency can cause endemic goitre, cretenism, mental retardation, infertility, congenital anomalies and increase in perinatal and infant death by thyroid hormone synthesis deficiency. In neonatal period, besides thyroid function tests iodine levels of infant urine and breast milk are used as a criteria. In an area, important signs of iodine deficiency are TSH levels more than 5 mU/ml in more than 3% of the population and avarage urinary iodine levels less than 100 µg/L in 6 to 12-years-old school children. In this study, we aimed to measure neonatal urinary iodine levels, thyroid functions and breast milk iodine levels in mothers and neonates living in Aydın which is a mild-moderate iodine deficiency area.

Material and Methods: Four hundred cases are included to the study; 11 neonates and their mothers from Adnan Menderes University Medical Faculty Pediatrics Department neonatal follow-up unit, 164 neonates born in Aydın Zübeyde Hanım Maternity Hospital and their mothers, 145 neonates born in Nazilli State Hospital and their mothers, 77 neonates born in Söke State Hospital and their mothers, 3 neonates born in Kuşadası State Hospital and their mothers. Serum TSH, FT4, TT4, TT3 levels are detected and breast milk, mother and neonatal urine are collected in same time in 4-7 days of neonate. Also, iodine levels of the drinking water were measured.

Results: Mean of neonate urinary iodine levels was 141.8±13.6 µg/L (101-173), mean of mother urinary iodine levels was 128.8±12.4 µg/L (104-163) and mean of mother breast milk iodine levels was 137.5±7.8 (107-169). The mean of thyroid function tests was TSH: 1.71±1.35(0.02-12) mU/ml, TT4: 12.9±2.37 (6.54-20.3) µg/dl, FT4: 1.29±0.22 (0.52-2.22) ng/dl, TT3: 173.2±39.3 (83-331) ng/dl in mothers and TSH: 7.26±7.87 (0.34-54.8) mU/ml, TT4: 13.9±3.6 (1.85-24) µg/dl, FT4: 1.68±0.33 (0.78-3) ng/dl, TT3; 187±60.4 (55-456) ng/dl

in neonates. The ratio of neonates who are detected and recalled back with TSH value more than 9.1 mU/ml was 22.5% and with TSH more than 5mU/ml was 47%. This ratio is consistent with severe iodine deficiency area according to WHO criterias. In this study, congenital hypothyroidism frequency was.25%. The ratio of mothers with >5mU/ml TSH levels was 3%. This ratio is consistent with mild iodine deficiency area according to WHO criterias. The mean iodine levels were detected as 270 µg/L for drinking water which is very much higher than the lower limit (5 µg/L) of the DSÖ.

Conclusion: Urinary and breast milk iodine levels of neonates and mothers in Aydın were normal. This situation shows the emphasis of iodinated salt usage by local health policies. Despite the ratio (3%) of mothers with >5 mU/ml TSH levels, the ratio (47%) of neonates with >5 mU/ml TSH levels are consistent with severe iodine deficiency area according to WHO criterias. The absense of iodine deficiency in those infants with high TSH levels make us think of other causes. Some other etiologic and physiopathologic mechanisms such as sample collection time, umblical care with iodinated solutions, insufficient iodine intake in pregnancy and natural goitregens taken by the mother are thought to be effective in thyroid metabolism.

Key words: İodine deficiency, thyroid function tests, mother and neonatal urinary iodine levels, breast milk iodine levels.