Introduction: The intellectual outcome in children with congenital hypothyroidism detected by neonatal screening is generally good. The aim of this study was to evaluate the intellectual outcome in patients with congenital hypothyroidism at childhood and to identify factors that may affect intellectual development.

Method: The intelligence quotient (IQ) of 126 patients with congenital hypothyroidism was evaluated at childhood using the Korean Wechsler Intelligence Scale for Children. We retrospectively reviewed their clinical datas to know etiology, thyroid function status, L-thyroxine dose at diagnosis and normalization duration of TSH. Etiology – dyshormonogenesis (Type 1), agenesis (Type 2), hypoplasia (Type 3) and ectopic thyroid (Type 4) - was sorted by imaging including ultrasonography and Tc-99m scintigraphy at diagnosis.

Result: The mean IQ of patients tested at childhood was 103.3 ± 11.5. Total IQ, verbal IQ and performance IQ of patients was not significantly different according to etiology. Mean IQ of patients with thyroid agenesis was lower than patients with thyroid dysgenesis, but there was no statistical significance. In multivariate linear regression analysis, pretreatment thyroid function, age at treatment and normalization duration of TSH were not determinants of IQ. L-thyroxine dose was statistically significant determinant of total, verbal and performance IQ.

Table 1. Baseline characteristics per subtype in children with congenital hypothyroidism

Table 2. IQ per subtype in children with congenital hypothyroidism

Table 3. Univariate linear regression analysis for IQ score in children with congenital hypothyroidism

Conclusion: IQ of children with treated congenital hypothyroidism were within normal range. Treatment pattern was important for intellectual outcome rather than etiology and severity of congenital hypothyroidism.

References