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**Thyroid**

**ODP459**

**Adiposity Rebound in Japanese Patients with Congenital Hypothyroidism Detected by Neonatal Screening**

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**Background:** More than 40 years have passed since the introduction of newborn screening programs (NBS) for...
congenital hypothyroidism (CH), and there have been many reports on the long-term outcome of CH identified by NBS. There are some reports that CH is associated with early adiposity rebound and adult obesity. On the other hand, the association between AR and CH has not been revealed in Japan. **Objective:** The aim of this study was to evaluate the timing of AR in individuals with CH detected by NBS in our institution, furthermore, to find out the risk factors of early AR in CH individuals. **Patients and Methods:** The study included 212 CH children (105 female/107 males) who were ten years of age or older as of September 2021. We retrospectively collected height and weight data from one to ten years of age, and the timing of AR was visually determined. We examined the association between the AR age and the severity of hypothyroidism at NBS and at the first visit. **Results:** The median AR age was 5.6 years for boys and 6.2 years for girls, which was unexpectedly not unexpectedly younger than that of the general Japanese population reported by Koyama (4.8 ± 1.4 years for boys, 4.7 ± 1.5 years for girls). Data from 115 patients (107 males, 105 females) whose physique data between the age of 15 and 18 were available showed that body mass index (BMI) was 21.1±3.2 kg/m² for males and 20.6 ±2.7 kg/m² for females, positively correlated with AR age, and not significantly different from BMI at 15-19 years of age (21.1±3.6 for males and 20.2±2.2 for females) in the 2019 National Nutrition and Health Survey (p=0.790, p=0.619). NBS-FT4 was slightly positively correlated to AR age (r=0.234, p=0.0315). We found that the AR age may be earlier and adult BMI may be higher in CH patients without ossification of the distal femoral epiphyseal nucleus at first evaluation. **Discussion:** Severe fetal hypothyroidism may cause an absence of mineralization of the distal femoral epiphyses in the neonatal period. Our results indicate that severe fetal hypothyroidism, even if diagnosed and treated at neonatal, contributes to the development of adult obesity. **Conclusion:** The AR age and BMI at 15-18 years of CH are not significantly different from the general population. However, severe fetal hypothyroidism could result in adult obesity. **Presentation:** No date and time listed