

HEAD CIRCUMFERENCE, BIRTH LENGTH, AND WEIGHT of NEONATES of MOTHERS WITH HYPOTHYROIDISM

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 مرکز شنايدر لطب الأطفال في اسرائيل
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Background

The important role of thyroid hormones on postnatal growth, neurological development and cognition has been documented both in animals and humans.

As during intrauterine development, the fetal Hypothalamic-Pituitary-Thyroid Axis, is not functionally matured, and the placenta is impermeable to TSH and is largely to T3 and T4. The question to what degree the thyroid functions of the pregnant mothers affect the fetal growth remains controversial (Bachrach 1985).

Methods

Data were extracted from the medical records of the mothers and the neonates as registered in the computerized system of the Rabin Medical Centre. Data were analysed using the BMDP Statistical Software and ANOVA).

Conclusions

This is the first report on the head circumference (i.e. brain size), birth length and weight for both genders of neonates of mothers with hypothyroidism. Our findings may indicate that some mothers with hypothyroidism receive inadequate treatment.

Aim

To assess' brain size, birth length and weight in neonates of hypothyroid mothers.

Subjects

Of 18,538 deliveries at the Helen Schneider Women's Hospital, Rabin Medical Centre, during the years 1987 to 1993, 142 deliveries were from mothers diagnosed with hypothyroidism. As controls served newborns of healthy mothers.

Results

This is the first report on the head circumference (i.e. brain size), birth length and weight for both genders of neonates of mothers with hypothyroidism.

Our study comprising 139 neonates (82 males and 57 females) showed that female neonates had a significantly smaller head circumference than the males 34.3 ± 1.4 vs 33.8 ± 1.5 cm (P0.047) and that neonates of both genders had a tendency to a smaller head circumference than the control population. The birth length and weight were similar.

Table 1 shows the mean age, gravidity and gestational age for the hypothyroid mothers of the male and female neonates. It is evident that both groups are similar.

Table 2, shows that the mean head circumference of female neonates of hypothyroid mothers is significantly smaller than that of the male offsprings, ($p = 0.047$) in contradistinction to the similar birth weight and length.

In **Table 3**, It is seen that in male new-borns of hypothyroid mothers at gestational weeks of 38-41 the head circumferences is significantly

Table 1

	Mean + SD n = 82	Mean + SD n = 57	
Age of Mother (years)	31.2±4.4	31.0±5.4	0.74
Gravity	3.8±3.0	3.2±2.7	0.3
Gestational Age	38.7±1.9	38.6±2.0	"

Characteristics of Hypothyroid Mothers at The Time of Delivery for Each Gender of Neonates

Table 2

	Male Neonates n = 82	Female Neonates n = 57	p-value
Head Circumference		33.8±1.5	0.047
Birth weight (gm)	3221±523	3195±560	0.78
Birth length (cm)	4.9±2.2	49.0±2.4	0.84

Birth Weight, Length and Head Circumference of 139 Neonates of Hypothyroid Mothers

Table 3

	Gestational Age	Hypothyroid Mothers		Healthy Mothers*		p-value
		Head Circumference (cm)	n	Head Circumference (cm)	n	
Male Neonates	37	34.30±1.58	9	34.1±1.3	1238	0.44
	38	34.438±1.349	13	34.6±1.3	2938	0.65
	39	34.187±0.973	15	34.9±1.2	4252	0.022
	40	34.606±0.994	18	35.2±1.2	3894	0.036
	41	34.936±1.172	14	35.6±1.2	1839	0.039
Female Neonates	37	33.50±1.732	4	33.6±1.3	1213	0.88
	38	33.15±0.934	8	34.0±1.2	2980	0.045
	39	33.75±1.061	16	34.3±1.2	4260	0.07
	40	34.7±1.151	15	34.6±1.2	3796	0.65
	41	34.543±1.642	7	34.9±1.1	1780	0.39

Comparison between the head circumference of neonates of hypothyroid mothers with that of neonates of healthy mothers