

THYROID FUNCTION TESTS AND AFFECTING FACTORS IN TWINS AND TRIPLETS

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AIM: To evaluate thyroid function tests and affecting factors in twin and triplet newborns

METHOD: 655 newborns(325 girls/330 boys) from 320 multiple gestations(305 twins/15 triplets) were evaluated retrospectively with respect to thyroid function tests(TFT- fT4, TSH). The effects of birth order, birth weight SDS, gestational age, maternal thyroid disease, gestational diabetes, assisted reproduction, dopamine were analysed.

RESULTS: Mean TSH was $5.3 \pm 10.9 \mu\text{IU/ml}$ and $5.6 \pm 7.5 \mu\text{IU/ml}$; mean fT4 levels were 1.53 ± 0.37 and $1.49 \pm 0.34 \text{ ng/dl}$ for the first and second born twins respectively($p:0.35$ for TSH; $p:0.14$ for fT4) The frequency of hypothyroidism was 1.07% (7/655). Only one twin (dizygotic) was concordant for hypothyroidism.

Gestational age(Median, range)	33 (25.0-37.1 weeks)
Assisted reproduction (%)	38.6
SGA/LGA (%)	9.7/2.9
Maternal thyroid disease (%)	10.5
Maternal L-Thyroxine tx (%)	8.8
Gestational diabetes (%)	14.5
Maternal insulin tx (%)	%3.2
Maternal Hypertension (%)	11.7
Neonatal Dopamine tx (%)	5.8

- SGA(59/549) babies had higher TSH (6.7 ± 5.4 vs $5.3 \pm 9.7 \mu\text{IU/ml}$; $p:0.001$)
- Mean TSH was higher in neonates with maternal thyroid disease (7.5 ± 11.5 vs $5.3 \pm 8.8 \mu\text{IU/ml}$; $p:0.094$)
- 3/7 neonates with hypothyroidism had maternal thyroid disease
- TFT of neonates with maternal gestational diabetes were similar.

- No difference was detected between TFT of newborns born to assisted reproduction pregnancies and spontaneous pregnancies.
- fT4 was lower in babies with dopamine treatment(1.38 ± 0.4 vs $1.52 \pm 0.34 \text{ ng/dl}$; $p:0.021$).
- A positive correlation was detected between TSH and dopamine treatment duration ($r: 0.384$, $p: 0.017$).
- A positive correlation was also present between fT4 and gestational age ($r: 0.482$, $p < 0.001$) .
- fT4 and TSH levels were similar in triplets (1.52 ± 0.23 ; 5.3 ± 3.35 / 1.50 ± 0.26 ; 5.20 ± 3.6 / $1.51 \pm 0.24 \text{ ng/dl}$; $5,12 \pm 3.09 \mu\text{IU/ml}$ for 1st, 2nd and 3rd born babies respectively) and birth order did not affect thyroid function tests.

CONCLUSION: There is a high frequency of hypothyroidism in twins and triplets. Although there are many confounding factors, thyroid function tests do not differ in twins and triplets.