

The Effect of Thyroxine Treatment on Linear Growth and Weight Gain in Infants and Children with Down Syndrome (DS) and High TSH versus Children with DS and normal thyroid function: A controlled study

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Introduction

Subclinical hypothyroidism is the most common in DS (trisomy 21). Thyroxin administration to improve growth early in life is still controversial.

Methods

We measured linear growth (BMI, height SDS (HtSDS) and weight gain/day) in 3 groups of infants and young children with trisomy 21 and divided them retrospectively into 3 groups according to their thyroid function.

Patients	No.	TFT
Group 1	25	Normal FT4 & TSH
Group 2	20	TSH >5- <15 mIU/L & normal FT4
Group 3	12	TSH >15 mIU/L &/or FT4 <9 pmol/L

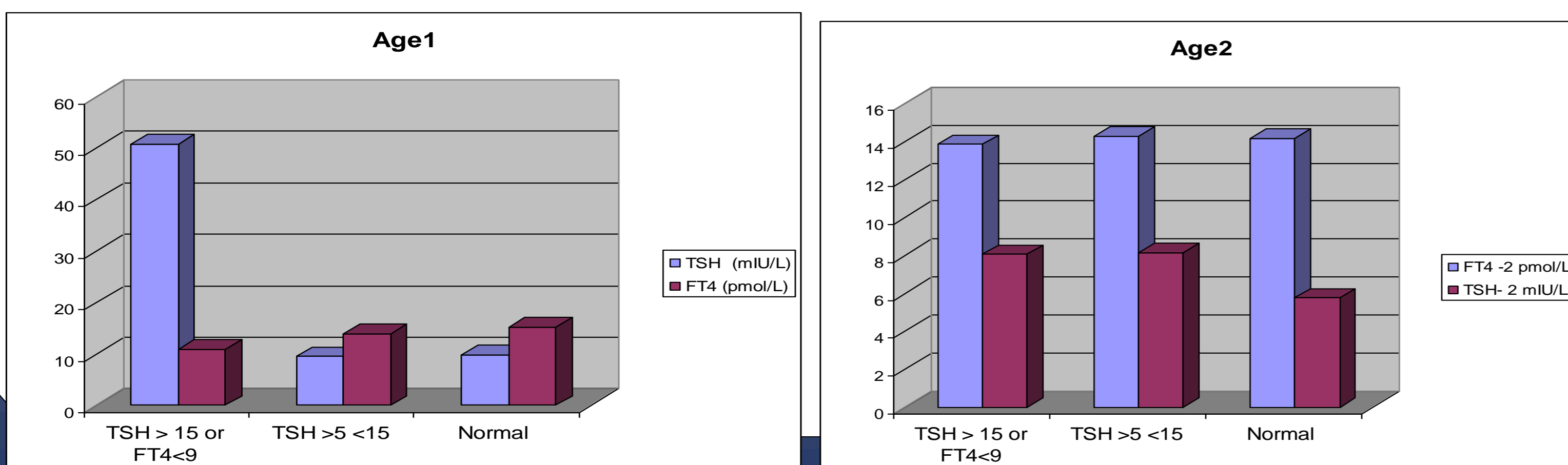
ANOVA test was used.

Results

Table 1: Thyroid function in 2 groups of trisomy 21 with high TSH before and after treatment compared to controls.

Groups	Age-1 (y)	TSH (mIU/L)	FT4 (pmol/L)	L-thyroxine (ug/day)	Age-2 (y)	FT4-2 (pmol/L)	TSH-2 (mIU/L)
TSH > 15 or FT4<9	3.86	50.75	10.93	34.38	7.73	13.85	8.05
TSH >5 <15	2.88	9.50	13.88	29.32	8.88	14.29	8.14
Normal	1.64	9.80	15.16	NT	4.15	14.16	5.77
p	0.077	0.00035	0.0032	0.65	0.0008	0.973	0.45

Age 1, 2: before and after treatment, NT = not treated with thyroxine.

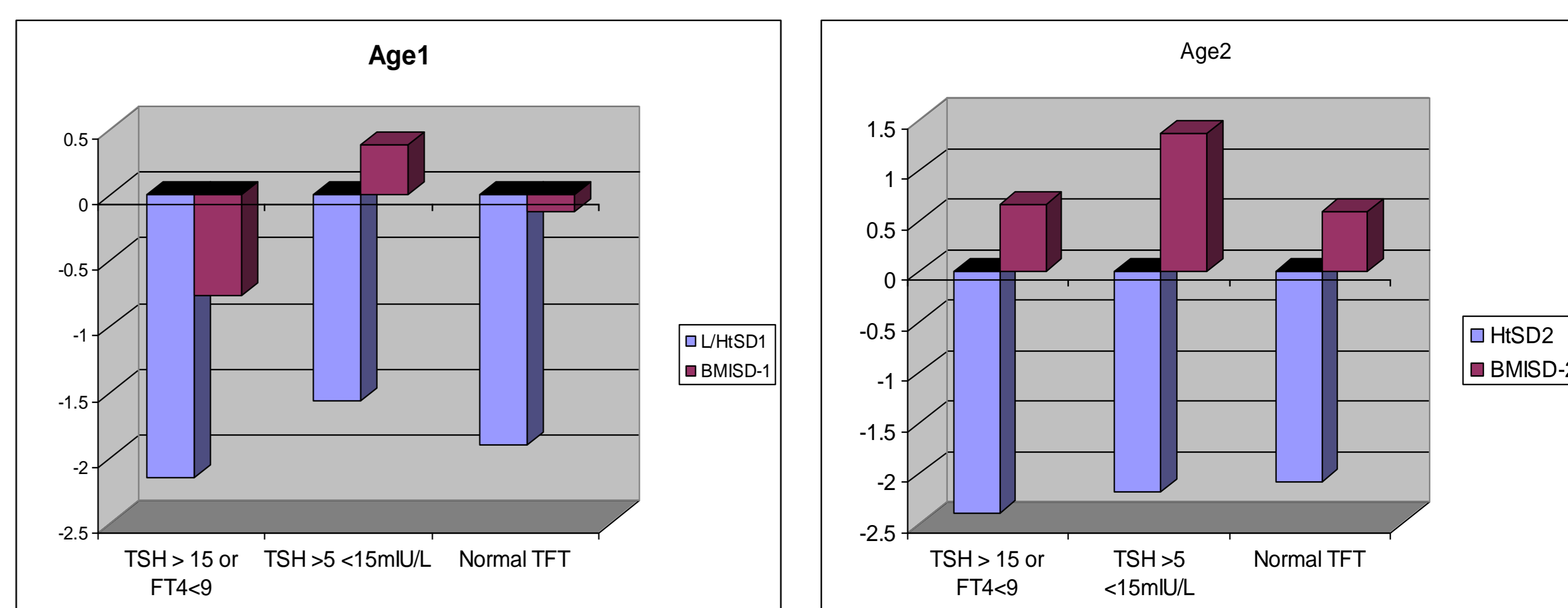


Results

Table 2: Anthropometric data in 2 groups of trisomy 21 with high TSH before and after treatment compared to controls.

Groups	Age 1 (y)	L/HtSD1	BMISD-1	Age 2 (y)	HtSD2	BMISD-2	Wt gain/d	Delta HTSD	Delta BMISD
TSH > 15 or FT4<9	3.86	-2.15	-0.77	7.73	-2.39	0.66	9.95	-0.24	1.43
TSH >5 <15mIU/L	2.88	-1.57	0.38	8.88	-2.18	1.37	7.67	-0.62	1.23
Normal TFT	1.64	-1.90	-0.13	4.65	-2.08	0.59	8.35	-0.17	0.69
P	0.08	0.11	0.0	0.0008	0.47	0.29	0.84	0.211	0.28

Age 1 and 2: before and after treatment



Discussion

At presentation and after 3 years of treatment with L thyroxine, we did not find a significant difference in linear growth or weight gain in infants and children with DS with high TSH compared to those with normal thyroid function.

Authors have no conflict of interest

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