

# PRELIMINARY RESULTS

## BODY COMPOSITION OF ADOLESCENT PATIENTS WITH CONGENITAL HYPOTHYROIDISM AND CORRELATION WITH LABORATORY PARAMETERS

Doulgeraki A.<sup>1</sup>, Petrocheilou G.<sup>1</sup>, Polyzois G.<sup>1</sup>, Tsoka E.<sup>2</sup>

1. Department of bone and mineral metabolism, Institute of Child Health, Athens, Greece

2. Paediatric Endocrinology Clinic, Department of Paediatrics, Agia Sophia Children's Hospital, Athens, Greece

### INTRODUCTION AND OBJECTIVES

Thyroid dysfunction may predispose to imbalanced body composition. The aim of the study is to evaluate bone, muscle and fat mass in teenagers with congenital hypothyroidism (CH) and correlate their bone profile with laboratory parameters, in an effort towards a more effective lifestyle counselling.

### METHODS

Adolescents diagnosed with CH through neonatal screening underwent thorough clinical examination, thyroid function tests (TFTs), total cholesterol, triglycerides and basic bone profile (Ca, P, Mg, creatinine, ALP, 25(OH)D, PTH), as well as bone mineral density scan, using dual-energy X-ray absorptiometry (DXA, GE Lunar Prodigy, Paediatric Edition). For statistical purposes, a group of 57 Greek, healthy age- and sex-matched controls was also studied.

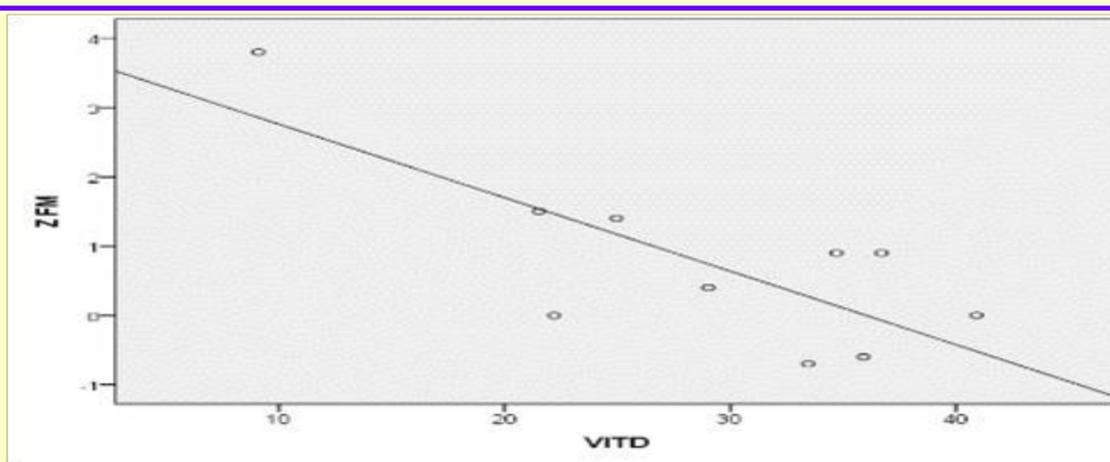


Figure 1: Negative correlation between vit D levels (ng/ml) and Z-score for fat mass (Z FM) in CH patients.

### RESULTS

To date, eighteen teenagers have been assessed, aged 14-18 years (12 female subjects); four with thyroid gland agenesis, ten with ectopic thyroid gland, two with hypoplastic thyroid gland and two with dysmorphogenesis. Five patients report a total of five post-traumatic fractures of long bones. 55% receive adequate calcium through their diet and only 33% exercise regularly. Their laboratory results (lipid profile, TFTs, Ca, P, Mg, creatinine, 25(OH)D, PTH) were within reference range, with a tendency of high-normal TSH values amongst boys. Compared to controls, the patients were heavier, with marginally higher fat mass, whereas their bone and muscle mass were comparable. A positive correlation was found between body weight and fat mass, which in turn was negatively correlated to vitamin D levels ( $r = -0.77$ ,  $p < 0.01$ ), figure 1.

### CONCLUSIONS

Overweight patients with congenital hypothyroidism tend to have more pronounced adipose tissue accumulation and lower vitamin D levels, therefore they should be targeted towards regular exercise and a balanced diet, with adequate calcium intake. In patients whose hypothyroidism is under control, bone and muscle mass are not particularly affected.

### REFERENCES

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