Impaired Quality of Life and Muscle Function in Patients with Hypoparathyroidism/Hypothyroidism Compared with only Hypothyroidism and Controls.

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BACKGROUND / AIM / POPULATION

Background: Hypoparathyroidism (HypoT) is often a complication to total thyroidectomy. Accordingly, patients with postsurgical HypoT are often also suffering from postsurgical hypothyroidism (HypoT+PT) and are often on substitution therapy with levethyroxine. The aim of the study is whether the previously shown impaired quality of life (QoL) and muscle strength in HypoT+PT (1,2) are mainly due to disturbances in calcium homeostasis or thyroid function.

Aim: The aim of the study was to assess QoL, muscle function, bone indices, and postural stability in patients with postsurgical HypoT+PT as compared to patients with postsurgical HypoT and healthy controls.

Population: Using a cross-sectional study design, we included 66 subjects.

HypoT+PT: 22 patients with chronic postsurgical HypoT and well-substituted hypothyroidism
HypoT: 22 patients with postsurgical well-substituted hypothyroidism without HypoT
Controls: 22 healthy controls without abnormalities in their thyroid or parathyroid function.

The three groups were matched on gender, age at time of testing (± 2 years) and the first two groups were also matched on time of thyroid surgery (± 2 years).

METHODS

Methods: QoL was measured by the two questionnaires; Short Form questionnaire 36 version 2 (SF-36v2): Results shown in fig. 1 and 2
WHO Five Well-Being Index survey (WHO-5): Results shown in fig. 2.

QUALITY OF LIFE

QUALITY OF LIFE

Methods: Muscle strength was measured by a dynamometer as illustrated below and by two functional tests; Repeated Chair Stands and Timed Up and Go: Results shown in table 3 and fig. 3
Postural stability was measured by a stadiometer as illustrated below: Results shown in table 3

MUSCLE AND BALANCE

Discussion: Compared with controls, HypoT was associated with a significantly lower mental summary score (SF36v2) and lower scores in four subdomains. Whereas patients with HypoT+PT had a significantly lower physical summary score compared to both controls and HypoT along with lower scores in seven out of eight subdomains compared to controls.

Who-5 well-being index was significantly lower in both groups of patients compared with controls, but did not differ between groups of patients.

Compared with controls, muscle strength and maximal force production were significantly reduced in HypoT+PT, but not in HypoT. In HypoT+PT, the time spend on the timed up and go test and the repeated chair stands test were significantly longer than in the HypoT- and the control group.

Biochemical markers of bone turnover were decreased in HypoT+PT and bone mineral density was increased at the lumbar spine. However, trabecular bone score (TBS) did not differ between groups. Adjusting for differences in body weight and plasma levels of TSH, iotized calcium, phosphate, 25(OH)D and eGFR did not change results to any major degree.

Conclusion: Compared with the general background population, QoL is moderately reduced in patients on treatment for postsurgical hypothyroidism, but patients do not have impairment of parathyroid function. Patients on treatment for both postsurgical hypothyroidism and hypoparathyroidism are more severely affected, as they have reduced QoL as well as impaired muscle function. Studies on how to improve well being and muscle function in HypoT+PT patients are warranted.

Keywords: Hypoparathyroidism, Hypothyroidism, Quality of life, Muscle function, BMD, and TBS

DEMOGRAPHICS / BIOCHEMISTRY

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BONE

Methods: Using DXA, we measured BMD and TBS: Results shown in table 4

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