

# L02 BONE MINERAL DENSITY IN YOUNG MALE PATIENTS AFTER THYROIDECTOMY

III Środkowo Europejski Kongres Osteoporozy i Osteoartrozy oraz XV Zjazd Polskiego Towarzystwa Osteoartrologii i Polskiej Fundacji Osteoporozy, Kraków 24-26.09.2009

## Streszczenia:

Ortopedia Traumatologia Rehabilitacja 2009, vol 11 (Supł. 2), s:50-51.

## L02

## BONE MINERAL DENSITY IN YOUNG MALE PATIENTS AFTER THYROIDECTOMY

**Rudenko E.<sup>1</sup>, Romanov G.<sup>2</sup>**

<sup>1</sup> Belarusian Medical Academy for Postgraduate Education, Minsk, Belarus

<sup>2</sup> Republican Research Center for Radiation Medicine and Human Ecology, Gomel, Belarus.

**Keywords:** *bone density, thyroidectomy, male, thyroxine*

**Introduction, aim of the Study:** Thyroidectomy with the following of thyroxine suppressive therapy can cause bone mass deficiency in male patients with thyroid carcinoma. The main aim of the study was to determine possible risk factors for bone mass loss after thyroidectomy due to thyroid carcinoma at male patients by suppressive thyroxin therapy.

**Materials, methods.** There were examined 86 male patients aged 20-38 who had undergone thyroidectomy on differentiated thyroid cancer and 64 healthy young males as a control group. All subjects included into the study lived on the territory of Gomel city and Gomel Region. BMD measurement was provided by 'LUNAR Prodigy' ("GE", USA). BMD disorder diagnostics in the main group was provided on the base of BMD standard deviation

in the control group by Z-score. Statistical analyses were conducted by SAS 9.3.1.program.

**Results, conclusion.** The provided calculations helped to divide the patients into 2 subgroups: subgroup 1- Z-score  $>-1,0$  and subgroup 2 – Z-score  $<-1, 0$ . As a result there was revealed BMD decrease on forearm at 11,8% cases, on hip at 20,9% cases and on lumbar spine at 30,2% from the total number of the patients. So the data can show that the most number of the patients with the decreased BMD was revealed under the study of  $L_1-L_4$ .

The analysis includes the age of the patient, the number of previous traumatic fractures, the age at the moment of thyroidectomy, duration of L-T<sub>4</sub> treatment, amount of operative treatment, dose of L-T<sub>4</sub> mg/kg/day in order to reveal possible factors influencing on BMD. There was found the correlation of  $L_1-L_4$  BMD and age at the moment of thyroidectomy which had polynomial character with the break point determined by Piecewise linear regression at the age around 18 years of old. The number of the patients with low BMD in lumbar spine increases from 14,0% in the group with disease duration less than 5 years up to 30,2% in the group with disease duration of more than 10 years.

Under the comparison of BMD values of various measure sites by Kruskal-Wallis test there was not revealed statistically significant differences of BMD parameters depending on TSH suppression level in young male patients.

By logistic regression method there was provided statistical processing of the data for Odds Ratio calculation. The statistically significant factors ( $p<0,05$ ) of  $L_1-L_4$  BMD decrease at young males after thyroidectomy are age at the moment of the operative treatment less than 14 years old (OR=5,46; 95% CI: 1,87-15,97;  $p=0,002$ ), disease duration after thyroidectomy of more than 10 years (OR=5,72; 95% CI : 2,05-15,98;  $p=0,001$ ) and BMI less than 23 kg/m<sup>2</sup> (OR=3,00; 95% CI; 1,14-7,88;  $p=0,026$ ). At disease duration less than 5 years (OR=0,08; 95% CI: 0,01-0,67;  $p=0,001$ ) bone mass deficiency at young males after thyroidectomia is hardly probable.