Investigating the bone metabolic parameters and serum 25-hydroxyvitamin D levels in male patients with asymptomatic hyperuricemia

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INTRODUCTION

Over the past few years the clinical relevance of serum uric acid level has changed. The elevated serum uric acid level not only impairs the joints and the kidney function but it is also linked with an increased risk of cardiovascular diseases.

The aim of our study was to examine how bones are affected (change of bone mineral density, bone metabolism parameters, serum 25-hydroxyvitamin D levels and frequency of fractures) by elevated serum uric acid level.

<table>
<thead>
<tr>
<th>Patients</th>
<th>Age (yrs) ±SD</th>
<th>Weight (kg) ±SD</th>
<th>Height (m) ±SD</th>
<th>BMI (kg/m²) ±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperuricemia</td>
<td>86</td>
<td>54.9 ±1.6</td>
<td>84.18 ±7.51</td>
<td>1.76 ±0.074</td>
</tr>
<tr>
<td>NO Hyperuricemia</td>
<td>55.2 ±1.3</td>
<td>85.92 ±6.4</td>
<td>1.82 ±0.056</td>
<td>25.83 ±2.56</td>
</tr>
</tbody>
</table>

RESULTS

In patients with asymptomatic hyperuricemia lumbar spine (L2-4) BMD (T-score: -2.53 ± 0.20 vs -1.91 ± 0.20, p < 0.05) and left femoral neck BMD (T-score: -2.45 ± 0.16 vs -1.98 ± 0.15, p < 0.05) were lower than in patients without hyperuricemia. Serum 25-(OH) vitamin D3 levels were also lower in the hyperuricemic group (48.4 nmol/l ± 15.1 vs 55.86 nmol/l ± 16.7, p < 0.05). Bone fracture had occurred in 17 of 68 hyperuricemic patients, while in the non-hyperuricemic group only 7 fractures were recorded.

CONCLUSIONS

The in-time recognition and treatment of elevated serum uric acid level could positively influence the bone metabolism and be part of fracture prevention.