study indicate that concentrations of vitamin K were not affected by fractures in its acute phase. Bone formation markers did not change during the acute phase of hip fracture. Bone resorption markers increased on the third day. Biochemical markers of bone turnover were not affected for at least 48 h after fracture. Therefore, the values of those measurements during the first 48 h after fracture appear to reflect bone metabolism unaffected by the hip fracture itself.

Table 1. Biochemical markers and vitamin K on the three successive days immediately after fracture in patients with hip fracture.

<table>
<thead>
<tr>
<th></th>
<th>Day 0</th>
<th>Day 1</th>
<th>Day 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Calcium (mmol/L)</td>
<td>2.07 ± 0.17 (2.10, 1.77–2.57)</td>
<td>2.10 ± 0.15 (2.10, 1.84–2.45)</td>
<td>2.12 ± 0.15 (2.12, 1.92–2.47)</td>
</tr>
<tr>
<td>Phosphorus (mmol/L)</td>
<td>0.87 ± 0.26 (0.84, 0.52–1.74)</td>
<td>0.90 ± 0.19 (0.90, 0.58–1.26)</td>
<td>0.87 ± 0.19 (0.84, 0.48–1.16)</td>
</tr>
<tr>
<td>Albumin (g/L)</td>
<td>32 ± 5 (32, 23–42)</td>
<td>31 ± 5 (33, 23–41)</td>
<td>29 ± 5* (29, 23–39)</td>
</tr>
<tr>
<td>Alkaline phosphatase (U/L)</td>
<td>131 ± 46 (125, 39–242)</td>
<td>129 ± 48 (139, 42–242)</td>
<td>121 ± 51 (127, 42–255)</td>
</tr>
<tr>
<td>Osteocalcin (μg/L)</td>
<td>6.2 ± 5 (4.9, 1.8–30.8)</td>
<td>5.2 ± 2.6 (4.2, 2.0–12.2)</td>
<td>5.0 ± 3.1 (3.9, 1.6–11.6)</td>
</tr>
<tr>
<td>Pyridinoline (μmol/mole creatinine)</td>
<td>58 ± 25 (50, 15–129)</td>
<td>65 ± 30 (59, 30–179)</td>
<td>70 ± 32* (64, 27–178)</td>
</tr>
<tr>
<td>Deoxypyridinoline (μmol/mole creatinine)</td>
<td>11.8 ± 5.2 (11.1, 1.0–23.1)</td>
<td>13.3 ± 5.7 (13.6, 5.0–33.0)</td>
<td>14.4 ± 6.2* (14.3, 6.6–33.2)</td>
</tr>
<tr>
<td>Vitamin K2 (μg/L)</td>
<td>0.43 ± 0.48 (0.32, 0.10–2.25)</td>
<td>0.30 ± 0.33 (0.22, 0.10–1.38)</td>
<td>0.34 ± 0.29 (0.24, 0.10–0.93)</td>
</tr>
<tr>
<td>Menaquinone 7 (μg/L)</td>
<td>0.81 ± 1.05 (0.83, 0.10–4.58)</td>
<td>0.68 ± 0.74 (0.54, 0.10–2.93)</td>
<td>0.59 ± 0.65 (0.57, 0.10–2.32)</td>
</tr>
<tr>
<td>γ-Carboxyglutamic acid (μmol/g creatinine)</td>
<td>66 ± 15 (63, 44–99)</td>
<td>64 ± 14 (61, 43–95)</td>
<td>62 ± 11* (61, 42–85)</td>
</tr>
</tbody>
</table>

*P < 0.05 vs day 0 by Wilcoxon signed-rank test. Values are means ± SD except as noted. Values in parentheses are (median, range).

References

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Interference with Nephelometric Assay of C-Reactive Protein by Monoclonal Immunoglobulin

To the Editor:
Various chemical laboratory methods are subject to interference by monoclonal immunoglobulins (paraproteins, e.g., those cited in references 1 and 2). This phenomenon does not depend on antibody specificity of the monoclonal immunoglobulins but on peculiarities of their physico-chemical behavior. Occasionally, similar interference has been reported with homogeneous immunoassays for C-reactive protein (CRP) determination (3–5). Yamada et al. (6) add to this list a case report of a patient with monoclonal IgM, type κ, exhibiting erroneously high results in our particle-enhanced immuno-nephelometric assays for determination of CRP and anti-streptolysin O (ASO) (N Latex CRP and N Latex ASL, respectively, of Dade Behring). The mechanism of interference by monoclonal IgM with the N Latex CRP assay (product code OUSV) has been investigated in more detail by Le Carrer et al. (7). That study showed that an unspecific reaction of certain monoclonal proteins (mostly κ-type) depended on the presence of latex particles and was further affected by coating of the particles with antibody (rabbit anti-human CRP) and by reaction enhancers (polyethylene glycol, PEG).

Behring Diagnostics in 1996 launched a new generation of immunonephelometric CRP assay, N Latex CRP mono (product code OQIY, available in most parts of the world). This assay utilizes modified latex particles with optimized surface characteristics, mouse monoclonal antibodies, and no reaction enhancer. In our evaluation, we were unable to detect unspecific reactions with IgM paraproteins (8). Nevertheless, users should remain aware of potential interferences and should check the clinical plausibility of their results.

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References


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