Quality of life and pain in patients with metastatic bone disease from solid tumors treated with bone-targeted agents – a real-world cross-sectional study from Switzerland (SAKK 95/16)


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Background

• Bone metastases are common in patients with solid tumors and are frequently associated with skeletal complications, known as skeletal-related events (SREs) and symptomatic skeletal events (SSEs) [1].
• Bone-targeted agents (BTAs) are widely used in clinical practice to delay the onset of SREs and bone pain, and thereby to maintain or delay a decrease in quality of life (QoL) [1,2].
• Knowledge of the impact of the use of BTAs in routine care on patient-reported pain and bone pain-related QoL is limited.

Objectives:

• To describe the real-world use of BTAs and their effect on patients’ bone pain, general and bone-pain-related QoL.
• To compare these outcomes between patients treated to those not treated with a BTA by taking physicians’ estimation of risk for bone complications into account.

Methods

• In this real-world cross-sectional study [3] oncologists from across Switzerland enrolled patients over a 3-month study period.
• Patients were aged ≥18 years, had solid tumors and at least one bone metastasis, and received routine management at the participating physician’s center.
• Physicians provided data on their clinical setting, BTA-related practices, patients’ disease status, risk of bone complications and BTA regimen.
• Patients completed questionnaires about pain (BPI), general and bone-pain-related quality of life (FACT-G, FACT-BP) and treatment satisfaction (FACT-TS-G).

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Statistical considerations:

• Continuous variables include the total scores, subscales and single items of the FACT-G, FACT-BP, FACT-TS-G and BPI.
• Differences between groups were tested by Wilcoxon–Mann–Whitney tests or Kruskal-Wallis tests.
• A difference of ≥3 points in the FACT-BP and ≥4 in the FACT-G is considered clinically relevant.

Results

• The 18 participating sites recruited 417 patients.
• Based on the FACT-BP, 42% of the patients indicated not having bone pain.
• According to the BPI, 28% reported no, 43% mild, 14% moderate, and 15% severe pain, respectively.
• Patients who were not treated with a BTA had better overall QoL (FACT-G: mean difference = 4; 95% CI: 0.3; 7.7; p=0.031) and bone pain-related QoL (FACT-BP: mean differences = 3; 95% CI: 0.3; 4.0; p=0.007) than those treated with a BTA (Table 1).
• Patients considered at ‘low risk of bone complications’ not receiving a BTA reported significantly lower ‘worst pain’ scores (p=0.025) and better bone pain-related QoL scores (p=0.012) than those considered at ‘low risk’ but receiving a BTA treatment or those considered at ‘high risk’ regardless of BTA treatment (Figure 1).
• Overall satisfaction with the BTA treatment was good, with almost 50% of patients reporting that they were completely satisfied.

Conclusions

• Patient-reported outcomes support the findings based on the physicians’ perspective suggesting high levels of pain control [3].
• Overall, pain and QoL did not significantly differ according to BTA treatment or physicians’ risk perception.
• Patients with low risks not receiving BTA treatment reported the least pain and highest QoL scores.
• Differences in QoL between patients with ‘high’ and ‘low’ risks for bone complications may be a consequence of varying disease burden.
• Treating physicians seem to assess bone complication risk appropriately and treat patients accordingly, even by deviating from international guidelines.

References


1. Bone pain (BPI):

   - Worst pain:
     - Mean: 3.1 ± 2.9
     - SD: 2.5 ± 2.7
     - N: 295
     - Patients treated with a BTA:
       - 229 (77.4%)
     - Patients not treated with a BTA:
       - 66 (22.6%)
   - Least pain:
     - Mean: 1.2 ± 1.6
     - SD: 1.1 ± 1.6
     - N: 295
     - Patients treated with a BTA:
       - 228 (77.1%)
     - Patients not treated with a BTA:
       - 67 (22.9%)

2. Average pain:

   - Mean: 2.1 ± 2.1
   - SD: 1.9 ± 2.1
   - N: 295
   - Patients treated with a BTA:
     - 229 (77.4%)
   - Patients not treated with a BTA:
     - 66 (22.6%)

3. Pain relief:

   - Mean: 1.7 ± 2.2
   - SD: 1.4 ± 1.9
   - N: 295
   - Patients treated with a BTA:
     - 229 (77.4%)
   - Patients not treated with a BTA:
     - 66 (22.6%)

Table 1. Patient-reported outcomes by BTA treatment and risk status

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Treated patients</th>
<th>Not treated patients</th>
<th>p value</th>
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<tbody>
<tr>
<td>Pain (BPI)</td>
<td></td>
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<tr>
<td>Worst pain</td>
<td>229 (77.4%)</td>
<td>66 (22.6%)</td>
<td>0.031</td>
</tr>
<tr>
<td>Least pain</td>
<td>228 (77.1%)</td>
<td>67 (22.9%)</td>
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<tr>
<td>Average pain</td>
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<tr>
<td>Pain relief</td>
<td>229 (77.4%)</td>
<td>66 (22.6%)</td>
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<tr>
<td>Bone pain (FACT-BP)</td>
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<tr>
<td>Quality of Life (FACT-G)</td>
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</tr>
<tr>
<td>Physical wellbeing</td>
<td>302 (20.5)</td>
<td>57</td>
<td>0.007</td>
</tr>
<tr>
<td>Social/family wellbeing</td>
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<td>50</td>
<td>0.101</td>
</tr>
<tr>
<td>Emotional wellbeing</td>
<td>300 (17.4)</td>
<td>47</td>
<td>0.021</td>
</tr>
<tr>
<td>Functional wellbeing</td>
<td>303 (17.8)</td>
<td>54</td>
<td>0.021</td>
</tr>
</tbody>
</table>

Figure 1. Boxplots for pain and QoL by BTA treatment (yes/no) and risk status (low/high)

Higher score indicate worse pain; Higher scores indicate worse bone pain or better QoL. *Univariate Wilcoxon-Mann-Whitney tests.