ABSTRACT

Background: The incidence of bone metastases (BM) in patients with advanced lung cancer is not known. Although BM is encountered in 40–50% of patients with non-small cell lung cancer (NSCLC), the incidence of BM is unknown in patients with small cell lung cancer (SCLC).

Aim: To determine the risk of BM in patients with advanced NSCLC/SCLC and the impact of SREs on QOL, and the predictive factors for SREs.

Methods: Eligibility criteria included newly diagnosed patients with stages IIIB or IV lung cancer whose BM status was unknown at enrollment. The following 3-monthly radiological examinations were performed every 6 weeks on the chest and abdomen, and every 12 weeks on the brain and bone. Treatment for lung cancer and use of zoledronic acid were left to the discretion of the investigator. A QOL questionnaire was carried out at enrollment, 3 months, and 12 months after enrollment.

Results: Eighteen patients with advanced NSCLC/SCLC were enrolled from April 2009 to March 2011. Seventy-eight patients (65% of those diagnosed with BM) had BM at enrollment. Among them, 24 had concurrent BM and 17 of those developed BM during the follow-up. Eighty-six patients without initial BM at enrollment were followed for 24 months, and 10 of those developed BM during the follow-up. Cox regression of SRE incidence revealed factors including SREs were bone radiation in 15.7%, pathologic fractures in 4.7%, hypercalcemia in 2.2% and spinal cord compression in 1.1%.

Conclusions: The incidence of BM in patients with advanced NSCLC/SCLC was 65%, and the incidence of SREs was 20%. The incidence of BM was 20% in patients with advanced lung cancer. These results are relevant for clinical practice and for the influence of BM on QOL.

Keywords: Lung cancer, bone metastases, SREs, QOL, Cox regression

Summary of subgroups by age

Cox regression for BM incidence - stratified analysis

<table>
<thead>
<tr>
<th>Factor</th>
<th>HR (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage (IV vs. IIIA)</td>
<td>2.33 (1.39-3.93)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age (≥65 vs. &lt;65)</td>
<td>1.70 (1.02-2.89)</td>
<td>0.037</td>
</tr>
<tr>
<td>Gender (male vs. female)</td>
<td>2.72 (1.24-5.93)</td>
<td>0.018</td>
</tr>
</tbody>
</table>

Cox regression for SRE Incidence

| Stage (IV vs. IIIA) | 1.94 (1.33-2.85) | 0.016 |
|Age (≥65 vs. <65) | 1.84 (0.92-3.65) | 0.083 |

REFERENCES


CONCLUSIONS

- The incidence of BM at initial diagnosis was 48% in patients with stage IV NSCLC, and was higher than initially expected.
- Various SREs developed in 18% of all patients during the follow-up time.
- Forty percent of patients enrolled in the study had BM and half of the patients who developed BM had SREs during the follow-up period.
- Multivariate analysis revealed that factors predicting BM were NSCLC, stage IV, PE, LDH and BAP, and factors predicting SREs were NSCLC, stage IV and age ≥65.