Comparing comorbidity scales in patients with advanced non-small-cell lung cancer

Clinician comorbidity score versus CIRS-G

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A study from Innlandet Hospital Trust and Trondheim University Hospital
Background

- Comorbidity is an independent prognostic factor for survival in cancer patients \(^1,^2\)
- In general, comorbidity increases with age\(^3\)
- A growing population of elderly cancer patients\(^4\)
- Systematic comorbidity assessments are needed

The Cumulative Illness Rating Scale for Geriatrics (CIRS-G)

- Frequently used and validated index\textsuperscript{5,6,7}
- Time-consuming
- Scoring by trained personnel is recommended
- A shortened, yet precise index?

7. Miller MD et al. Psychiatry res 1992
Methods: Patients

• Phase III trial comparing two palliative first-line chemotherapy regimens in patients with advanced non-small-cell lung cancer

• No significant difference in overall survival or quality of life

Methods: Comorbidity assessments

- Researchers, "CIRS-G scores"
  - CIRS-G
    - 14 organ systems
  - The Miller Manual 1992
    - 1992
  - Retrospective

- Clinicians "C–scores"
  - Based on CIRS
    - 14 organ systems
  - Instruction similar to original CIRS
  - Prospective

Methods: In all patients with both methods

- Comorbidity were assessed for each organ system on a scale ranging from 0 to 4
- We calculated:
  - Total score
  - Severity index (= total score/number of categories with a score > 0)
  - Severe comorbidity (≥ one score 3-4)
Methods: Analysis

- Comparison of CIRS G and C-scores
  - Total score, severity index and severe comorbidity
- Previously published analyses found no impact of CIRS-G scores on survival\(^{11}\)
- Cox regression analysis to investigate the prognostic impact of C-scores on survival
  - Severe comorbidity (≥ one score 3-4)
  - High severity index (>2)
Eligible patients (n=436)

Medical records not retrieved (n=13)

CIRS-G assessed (n=423)

No study treatment (n=13)

Baseline quality of life not completed (n=8)

C-score not assessed (n=27)

Analysed for comorbidity (n=375) =86%
Results

The median total CIRS-G score: 7
C-score: 4

Mean severity-index
1.73 (CIRS-G)
1.43 (C-score)
Patients grouped according to number of organ systems with severe comorbidity

<table>
<thead>
<tr>
<th>No of organsystems with Severe Comorbidity</th>
<th>C-score</th>
<th>CIRS-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>74.9</td>
<td>50.9</td>
</tr>
<tr>
<td>1</td>
<td>19.7</td>
<td>37.3</td>
</tr>
<tr>
<td>2-4</td>
<td>5.4</td>
<td>11.7</td>
</tr>
</tbody>
</table>
Scatter plot illustrating the agreement of the two assessments
The clinicians report less comorbidity, why?

- The skewed graph towards lower values for the total C-scores could implicate that the clinicians underreport non-lethal comorbidity.

- CIRS-G too sensitive for non-lethal comorbidity?
# Univariate analyses

<table>
<thead>
<tr>
<th></th>
<th>N (%)</th>
<th>HR (95%CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comorbidity CIRS-G</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>191 (50.9)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>184 (49.1)</td>
<td>1.11 (0.89;1.40)</td>
<td>0.35</td>
</tr>
<tr>
<td><strong>Severity Index CIRS G</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>247 (65.9)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>128 (34.1)</td>
<td>0.99 (0.79;1.26)</td>
<td>0.98</td>
</tr>
<tr>
<td><strong>Comorbidity C-score</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>281 (74.9)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>94 (25.1)</td>
<td>1.03 (0.79;1.33)</td>
<td>0.85</td>
</tr>
<tr>
<td><strong>Severity Index C-Score</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>268 (71.5)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>107 (28.5)</td>
<td>1.14 (0.89;1.46)</td>
<td>0.30</td>
</tr>
</tbody>
</table>
Comorbidity had no impact on survival, why?

- It have been suggested that the influence of comorbidity on survival is relative to the prognosis of the malignant disease\textsuperscript{10}
- Advanced NSCLC poor prognosis

\textsuperscript{10} Read W.L et al 2004 J. Clin Oncol
Conclusion

There was poor agreement between the comorbidity scores assessed by the patients’ physicians and the CIRS-G scores by trained researchers.

Reported comorbidity vary considerably according to assessment method. This should be taken into account when comparing comorbidity scales.

When publishing data it’s important to describe thoroughly how comorbidity was rated.
Thank you for your attention

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