Use of Chemotherapy Toxicity Risk Prediction Models: Pro

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Predicting the Risk of Chemotherapy Toxicity in Older Patients: The Chemotherapy Risk Information System (CRIS) Study

Original article

Comprehensive geriatric assessment to characterize the advanced cancer patient

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N. Tubby
National Cancer Institute, National Institutes of Health, Bethesda, Maryland, USA

Contents lists available at ScienceDirect

The Breast

Original article

Baseline comprehensive geriatric assessment is associated with toxicity and survival in elderly metastatic breast cancer patients receiving single-agent chemotherapy: Results from the OMEGA study of the Dutch Breast Cancer Trialists’ Group


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<table>
<thead>
<tr>
<th>Study</th>
<th>Physical Function</th>
<th>Co-morbidity</th>
<th>Poly-pharmacy</th>
<th>Psychological</th>
<th>Cognition</th>
<th>Social Support</th>
<th>Nutrition</th>
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<tbody>
<tr>
<td>CARG</td>
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<td>CARG-BC (Breast)</td>
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<td>OMEGA (Breast)**</td>
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</table>

**Proportion of patients experiencing toxicity increased with greater number of impaired GA domains**
Functional Status
- Lawton IADL
- OARS IADL
- "dependence"

Psychological
- GDS
- HADS
- Investigator assessment

Cognition
- Blessed
- MMSE

Social Support
- MOS Social Support
- MOS Social Activity
- Not assessed in some studies

Nutrition
- MNA
- BMI
- %wt loss
CARG Toxicity Tool

Overall ROC = 0.72

- GU: ROC = 0.76
- GI: ROC = 0.72
- Lung: ROC = 0.68
- Gyn: ROC = 0.66
- Breast: ROC = 0.66
- Other cancers: ROC = 0.81

Hurria, et al. JCO, 2011
CARG-BC Model Performance

CARG-BC Score

<table>
<thead>
<tr>
<th>Grade 3-5 Toxicities</th>
<th>Low (0-5)</th>
<th>Medium (6-9)</th>
<th>High (10-19)</th>
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<tbody>
<tr>
<td>P&lt;0.001</td>
<td>21%</td>
<td>45%</td>
<td>79%</td>
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<tr>
<td>AUC 0.76</td>
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<tr>
<td>(95% CI 0.70-0.82)</td>
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Original CARG Tool

<table>
<thead>
<tr>
<th>GA Components:</th>
<th>Low (0-5)</th>
<th>Medium (6-9)</th>
<th>High (10-19)</th>
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<tr>
<td>Fall history</td>
<td>36%</td>
<td>58%</td>
<td>61%</td>
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<td>Physical function (one mile)</td>
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<tr>
<td>Social support (lack of someone to provide advice)</td>
<td>21%</td>
<td>45%</td>
<td>79%</td>
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<td>Hearing</td>
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<td>IADL (Meds)</td>
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(95% CI 0.57-0.70)

Hurria, et al. SABCS, 2018
Other components that are important to consider:

- Assessment tools used in each GA domain
  - Varies across studies
  - Transferability to different countries/cultures
    - Ability to walk “one block” or “one mile”

- How tools are scored and considered in the model development
  - Use of individual questions vs score of full tool

- When treatment factors are components of the model, consideration of variations in practice patterns
Summary

- Components of the geriatric assessment add value to the prediction of chemotherapy toxicity across disease types and settings
  - Important to consider the population under study when determining GA assessment tools, scoring thresholds, etc.

- Conceptual as opposed to a literal approach
  - Allows for flexibility as treatment regimens, therapy mechanisms, spectrum of side effects and supportive care measures evolve