The combined “VES-13 + (max – G8)”: an alternative screening tool for identification of potentially vulnerable elderly head and neck cancer patients?

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Background

• CGA proposed as key treatment approach (NCCN, SIOG)

• Need for time/cost-efficient screening instrument for identification of patients in need of a full CGA

• Head and Neck cancer: more frequent with increasing age (Belgium: 38% ≥ 65y) → challenge for (intensive) treatment decisions

AIM:
Validation of an optimal screening tool in an elderly head and neck cancer population, treated with curative radiotherapy

Methods (1)

• **Inclusion criteria**
  > Head and Neck cancer patients
    • histologically confirmed Squamous Cell Carcinoma of lip, oral cavity, pharynx, larynx, or occult primary
    • exclusion of tumours of the parotid gland, nasal cavity and paranasal sinuses
  > Aged ≥ 65y
  > Eligible for curative primary or adjuvant radiotherapy w(o) systemic therapy

• **Recruited at radiotherapy departments** of General Hospital Groeninge and Ghent University Hospital (January 2010 – January 2011)
Methods (2)

> **Vulnerable Elders Survey-13**
  - age + functionally-based questions
  - cut-off score ≥ 3

> **G8**
  - age + 7 questions related from MNA
  - cut-off score ≤ 14

> **CGA as gold standard**
  - vulnerable if ≥ 2 positive tests

<table>
<thead>
<tr>
<th>Domains within CGA</th>
<th>Validated tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>ADL, IADL</td>
</tr>
<tr>
<td>Nutrition</td>
<td>MNA</td>
</tr>
<tr>
<td>Cognition</td>
<td>MMSE</td>
</tr>
<tr>
<td>Emotional</td>
<td>GDS</td>
</tr>
<tr>
<td>Physical</td>
<td>Tinetti balance and gait</td>
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<tr>
<td>Comorbidities</td>
<td>CIRS-G</td>
</tr>
</tbody>
</table>

Methods (3)

• Patients were defined ‘fit’ or ‘vulnerable’, based on the CGA

• **Receiver Operating Characteristics (ROC)** for VES-13 and G8

• Area Under the Curves were compared (Hanley & McNeil)

• **Explorative analyses** to define the most optimal combination of both screening instruments, based on AUC

• Final cut-off for combined test was defined for maximal S + Sp
### Results (1)

<table>
<thead>
<tr>
<th>Demographic, clinical and tumour characteristics</th>
<th>Number of patients (n = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age (range)</td>
<td>72.0 (65 - 86)</td>
</tr>
<tr>
<td>Male (%)</td>
<td>84.3</td>
</tr>
<tr>
<td><strong>Tumour diagnosis (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Lip + Oral Cavity</td>
<td>15.7</td>
</tr>
<tr>
<td>Pharynx</td>
<td>31.4</td>
</tr>
<tr>
<td>Larynx</td>
<td>43.1</td>
</tr>
<tr>
<td>Occult primary</td>
<td>9.8</td>
</tr>
<tr>
<td><strong>Stage (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Early (I/II)</td>
<td>29.4</td>
</tr>
<tr>
<td>Advanced (III/IV)</td>
<td>70.6</td>
</tr>
<tr>
<td><strong>Radiotherapy treatment (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Primary (w/o systemic therapy)</td>
<td>70.6 (41.2)</td>
</tr>
<tr>
<td>Adjuvant (w/o systemic therapy)</td>
<td>29.4 (21.6)</td>
</tr>
</tbody>
</table>
Results (2)

ROC-analysis of the
A. VES-13
B. G8
C. “VES-13 + (17-G8)” (CGA as gold standard for defining ‘fit’ and ‘vulnerable’)

* P<0.05; Hanley and McNeil
### Results (3)

<table>
<thead>
<tr>
<th>Screening tool</th>
<th>Cut-off score</th>
<th>Vulnerable (%)*</th>
<th>S (%)</th>
<th>Sp (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VES-13</td>
<td>≥ 3</td>
<td>39.2</td>
<td>57.1</td>
<td>100.0</td>
</tr>
<tr>
<td>G8</td>
<td>≤ 14</td>
<td>66.7</td>
<td>85.7</td>
<td>75.0</td>
</tr>
<tr>
<td>VES-13 + (max – G8)</td>
<td>≥ 5</td>
<td>64.7</td>
<td>91.4</td>
<td>93.8</td>
</tr>
</tbody>
</table>

* 68.6% were defined vulnerable according to CGA
(≥ 2 abnormal tests within CGA)
Conclusions

• VES-13 and G8 both have good diagnostic performance, based on AUC

• G8 more optimal for use in H&N population (false negatives)

• Combination of “VES-13 + (17-G8)” at a new optimal cut-off score ≥ 5 showed highest AUC, S and Sp

→ could represent an alternative screening tool in elderly H&N cancer population
Acknowledgements

Philip Debruyne
Laurence Goethals
Véronique Ghekiere

Tom Boterberg
Sylvie Rottey
Nele Van Den Noortgate
Wilfried De Neve
Fréderic Duprez

Kurt Geldhof

Khalil Kargar-Samani

Hans Pottel

Grant support:
NKP_24_018

Koen Van Eygen
Frank Cornelis
Supriya Mohile