Clinical implication of a quantitative frailty assessment tool for prognosis in patients with urological cancers

Dept of Urology, Hirosaki Univ. Sch. of Med., Hirosaki, Japan

MCC WEST, Room 3006, Sat, May 19, 15:30 – 17:30

Objectives:
To develop a simple and quantitative frailty assessment tool comparing healthy individuals, and investigate the clinical implication of quantitative frailty on prognosis in urological cancer patients.

Patients and Methods:
Total 605 urological cancer patients presenting to our hospital underwent a prospective frailty assessment. Controls were selected from 2280 community-dwelling subjects. Frailty was assessed via physiological status (handgrip strength and gait speed), blood biochemical tests (hemoglobin, albumin, and renal function), and mental status (exhaustion and depression). We compared frailty variables between pair-matched controls and urological cancer patients. We developed a frailty discriminant score (FDS), and the influence of FDS on overall survivals was investigated by Cox regression analysis.

Results:
Gait speed, hemoglobin, serum albumin, exhaustion, and depression were significantly worse in patients with all types of cancers than in pair-matched controls. non-PC = (6.8698 + age × 0.0053 + sex × 1.4794 + BMI × 0.0105 + handgrip × 0.0209 + TGUG × 0.1993 + exhaustion × 0.0876 + depression × 0.2005 + albumin × 0.9037 + eGFR × 0.1112 + hemoglobin × 0.2868), and PC = (5.6418 + age × 0.0110 + BMI × 0.0267 + handgrip × 0.0094 + TGUG × 0.1960 + exhaustion × 0.0880 + depression × 0.0464 + albumin × 0.5343 + eGFR × 0.0175 + hemoglobin × 0.5204). FDS showed clear separation between controls and urological cancer patients. Overall survivals were significantly shorter in patients with a higher score (>2.30) than in those with a lower score among non-prostate cancer (bladder, upper tract urothelial carcinoma, and renal cell carcinoma) patients. In prostate cancer patients, overall survivals were significantly shorter in patients with a higher score (>3.30) than in those with a lower score.

Conclusions:
FDS was significantly associated with frailty and prognosis in urological cancer patients. This tool for frailty assessment can help patients and physicians make more informed decisions. Further validation study is needed.

Background of subjects
Participants of Iwaki Health promotion project (Ctrl, n=2280)

Frailty discriminant score (FDS) formula

Variables comparison between controls and UC patients

Characteristics of FDS

Development of a frailty discriminant score (FDS), n=2885

Relationship between FDS and OS, n=605

Multivariate Cox regression analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor</th>
<th>P value</th>
<th>HR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Continuous</td>
<td>0.367</td>
<td>1.02</td>
<td>0.96-1.05</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>0.001</td>
<td>0.20-0.66</td>
<td></td>
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<tr>
<td>ECOG-PS</td>
<td>&gt;1</td>
<td>0.024</td>
<td>2.13</td>
<td>1.08-3.39</td>
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<tr>
<td>Cardiovascular disease (CVD)</td>
<td>Positive</td>
<td>0.084</td>
<td>0.53</td>
<td>0.25-1.07</td>
</tr>
<tr>
<td>Metastatic disease</td>
<td>Positive</td>
<td>0.001</td>
<td>9.34</td>
<td>5.12-17.1</td>
</tr>
<tr>
<td>Frailty discriminant score (FDS)</td>
<td>&gt;2.30</td>
<td>0.005</td>
<td>3.03</td>
<td>1.41-6.51</td>
</tr>
</tbody>
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CDI: The authors have no financial conflicts of interest disclose concerning the study. Osamu Soma