An operational definition of frailty predicted death, hip fracture, and hospitalization in older women


Clinical impact ratings: GIM/FP/GP ★★★★★✩✩ Geriatrics ★★★★★★★

Question
In older women, does frailty, defined by a combination of 5 simple measures, predict death, hip fracture, and hospitalization?

Methods
Design: Prospective cohort study.
Setting: 40 clinical centers in the United States.
Participants: 40,657 women 65 to 79 years of age who did not have Parkinson disease and did not take medication for Parkinson disease or depression and were expected to survive and live in the same area for ≥ 3 years.

Risk factors: Frailty, defined as having ≥ 3 of 5 frailty components: muscle weakness and slow walking speed (score < 75 out of 100 on the RAND-36 physical function scale, counts as 2 components), exhaustion (score < 55 out of 100 on the RAND-36 vitality scale), low physical activity (Kcal of weekly energy expenditure in the lowest quartile, calculated from a detailed physical activity questionnaire), or unintentional weight loss (> 5% of body weight in the previous 2 y).

Outcomes: Death, hip fracture, and overnight hospitalization during the follow-up period.

Main results
At baseline, 16% of women were considered to be frail and 28% to be intermediate (1 or 2 frailty components). At 3 years, frailty had developed in 15% of women with < 3 frailty components at baseline. Frailty at baseline increased risk for death, hip fracture, and hospitalization during the mean 5.9 years of follow-up (Table). Intermediate frailty was also a predictor of these outcomes, to a lesser extent (Table).

Association between frailty (> 3 frailty components) or intermediate frailty (1 or 2 frailty components) at baseline and adverse outcomes in older women at mean 5.9 years

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Frailty adjusted hazard ratio (95% CI)</th>
<th>Intermediate frailty adjusted odds ratio (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>1.7 (1.5 to 2.0)</td>
<td>1.3 (1.1 to 1.4)</td>
</tr>
<tr>
<td>Hip fracture</td>
<td>1.6 (1.1 to 2.2)</td>
<td>1.3 (1.0 to 1.7)</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 0.5/y</td>
<td>1.4 (1.3 to 1.6)</td>
<td>1.2 (1.1 to 1.3)</td>
</tr>
<tr>
<td>≥ 0.5/y</td>
<td>2.0 (1.7 to 2.2)</td>
<td>1.3 (1.2 to 1.5)</td>
</tr>
</tbody>
</table>

*CI defined in Glossary. Hazard ratios based on Cox proportional hazards models and odds ratios based on logistic regression models, adjusted for age, ethnicity, income, education, baseline health risk factors, disability, and comorbid conditions.

Conclusion
In older women, the operational definition of frailty was associated with increased risk for death, hip fracture, and hospitalization.

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For correspondence: Dr. N. Fugate Woods, University of Washington School of Nursing, Seattle, WA, USA. E-mail nfwoods@u.washington.edu.

Commentary
Current operational definitions propose indicators to measure frailty (1), using clinical judgment on additional items (2) and including standard geriatric assessment components (3). The study by Fugate Woods and colleagues enrolled the largest sample examining frailty to date, included many health and demographic characteristics, and had lengthy follow-up on relevant outcomes. The results were consistent with previous work in older men and women in the Cardiovascular Health Study (CHS) (1). The 2 studies showed similar magnitude of hazard ratios.

The ideal frailty measure identifies women not already overtly disabled but at risk for serious outcomes. Thus, the study by Fugate Woods and colleagues is close to the ideal, as only 6% of frail women in the CHS study (1) had few cognitively impaired women.

Reaching a consensus on frailty indicators is critical because of rapid growth of the elderly population and the associated increase in persons at risk for frailty, chronic conditions, and disability. While more research is needed in measuring and aggregating frailty components and discerning increased risk levels of frailty, the strong evidence reported here deserves translation into clinical practice. These frailty indicators should be integrated into comprehensive care for older women.

Rosaly Correa-de-Araujo, MD, MSc, PhD
Agency for Healthcare Research and Quality
Rockville, Maryland, USA

References

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