Associations of Frailty and Performance Status with Treatment Outcomes in Older Adults with Early Breast Cancer: Results from the Prospective Multicenter HOPE Study

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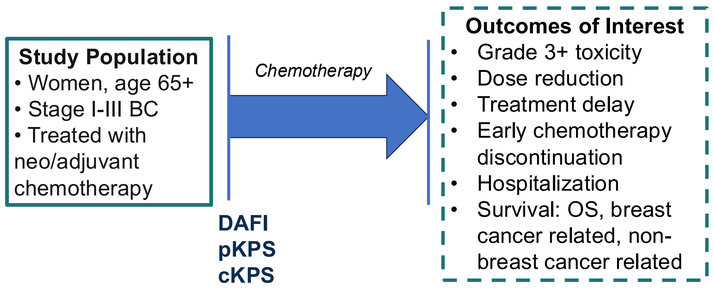
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Introduction

- Geriatric assessment (GA) is a multidomain measure of health
- GA evaluates a person's cognition, function, comorbidities, polypharmacy, etc. to identify age-related vulnerabilities
- GA outperforms clinician-rated KPS (cKPS), yet is rarely used
- Patient-reported KPS (pKPS) may be a simpler, scalable alternative, but its link to outcomes is unknown
- We **hypothesized** that pKPS would correlate more strongly with outcomes than cKPS and similarly to GA-based frailty

Methods

- Study schema: 499 women aged >65y with stage I-III breast cancer across 16 US sites who were planned to start neo/adjuvant chemotherapy

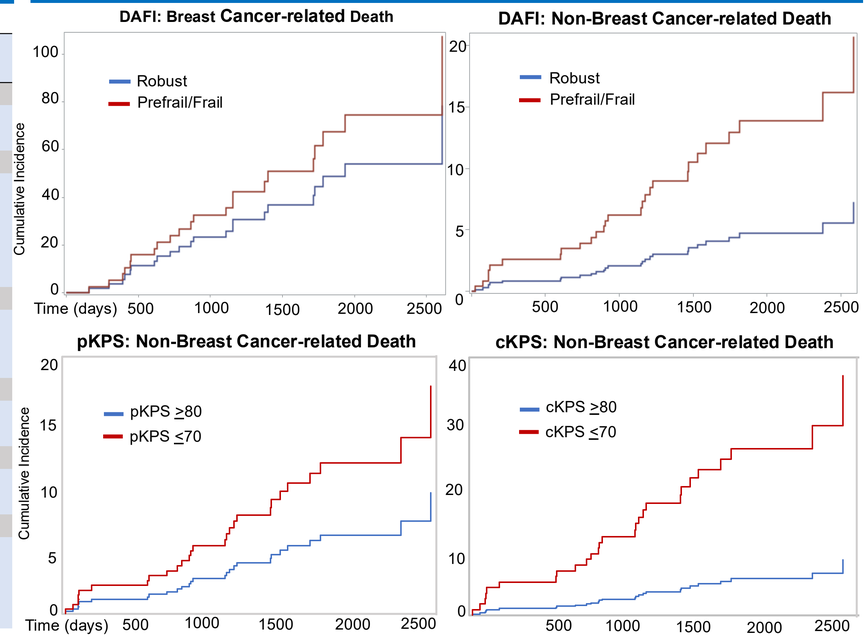


- GA-based Deficit Accumulation Frailty Index (DAFI) was categorized as robust (DAFI <0.2) or prefrail/frail (DAFI >0.2)
- cKPS and pKPS were collected and categorized as high (KPS≥80) or low (KPS<70)
- Primary endpoint was grade 3+ toxicity
- Secondary endpoints included: dose reductions, dose delays, early discontinuation, and survival (non-breast cancer-specific survival [non-BCSS])
- Adjusted for age, race/ethnicity, stage, and regimen

Baseline Characteristics

Participant Characteristic	Pre-Treatment Frailty Status: Robust N=394	Prefrail/Frail N=75
Age		
Median	69	71.5
Range	65-86	65-86
Race		
Non-Hispanic White	81%	54%
Black	13%	31%
Asian	2%	5%
Hispanic	4%	9%
Other	1%	1%
Education		
High school	24%	45%
College	44%	39%
Post-college	32%	15%
Employment		
Unemployed	72%	91%
Employed	28%	9%
Cancer Stage		
I	37%	29%
II/III	63%	71%
Tumor Marker		
Triple negative	24%	33%
Her2- / HR+	48%	42%
Her2+ / HR+	20%	15%
Her2+ / HR-	8%	10%

Survival Outcomes



Primary Analysis: Associations of cKPS, pKPS, and DAFI with outcomes

Functional Measure	Total N=499 No. (%)	Multivariable, OR (95% CI): Grade 3+ Toxicity	Dose Reduction	Dose Delay	Early Discontinuation	Multivariable, HR (95% CI): Non-BCSS
DAFI						
Robust (<0.2)	394 (79)	1.00	1.00	1.00	1.00	1.00
Pre/frail (≥0.2)	105 (21)	**2.70 (1.66-4.40)***	**1.87 (1.12-3.15)***	**1.85 (1.10-3.13)***	**1.76 (1.05-2.95)***	**2.56 (1.08-6.05)***
cKPS						
High (80+)	477 (96)	1.00	1.00	1.00	1.00	1.00
Low (≤70)	22 (4)	**2.80 (1.08-7.26)***	2.53 (0.98-6.55)	1.68 (0.62-4.57)	1.21 (0.44-3.33)	**4.35 (1.25-15.12)***
pKPS						
High (80+)	443 (90)	1.00	1.00	1.00	1.00	1.00
Low (≤70)	49 (10)	1.73 (0.88-3.39)	1.18 (0.58-2.44)	1.38 (0.68-2.84)	1.37 (0.67-2.81)	1.14 (0.35-3.74)

Abbreviations: cKPS=clinician-rated Karnofsky Performance Status (KPS); pKPS=patient-reported KPS; DAFI=geriatric assessment–derived frailty index; non-BCSS=non-breast cancer specific mortality
Adjusted for age, race/ethnicity, stage, and regimen.
*P-value < 0.05

Conclusion

- cKPS and pKPS correlated weakly
- pKPS was not associated with treatment outcomes
- cKPS showed limited associations
- DAFI was the most robust measure, strongly associated with all treatment outcomes: grade 3+ toxicity, treatment modifications, and non-BCSS

Limitations

- DAI is a composite measure of health and does not tell us which aspect of health is most predictive
- Focused on short-term functional change; longer-term trajectories of decline or recovery were not assessed

Future Directions

- There is a need to figure out how best to implement GA-based measures in routine clinical practice
- Automating administration and data collection of the GA could facilitate its use in clinical practice

Funding

NIH/NIA R01 AG037037
The Breast Cancer Research Foundation
UCLA's Cancer and Aging Research Program

Acknowledgements

We thank the patients, physicians, and research staff for their time and participation across the 16 collaborating institutions. This work builds on the legacy of Dr. Arti Hurria, who obtained the funding to establish the HOPE cohort. We dedicate this research to her vision and mentorship. Contact: yzektser@mednet.ucla.edu