GAIT SPEED DECLINE WITH INITIAL CHEMOTHERAPY MAY PREDICT DOSE-REDUCTION IN OLDER OVARIAN CANCER: EXPLORATORY ANALYSIS

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Background: Chemotherapy administration in ovarian cancer (OC) was previously restricted to those of younger age. Providers feared that older adults could not tolerate more effective chemotherapy regimens, without compromising quality of life and even survival. With the realization that chronologic age does not reflect physiologic age for many older adults with cancer, chemotherapy is increasingly offered to those over the age of 70 with ovarian cancer (OC). Clinically feasible predictors of treatment tolerance are needed, and allied healthcare practitioners play a critical role in the measurement of pre-treatment physical function.

Purpose: We aim to explore how gait speed and grip strength trajectories relate to adverse events (AE) over a course of chemotherapy in older women with ovarian cancer.

Methods: We conducted a secondary analysis in OC patients over the age of 70 years. We analyzed longitudinal data from 17 women age 70-86 (mean 75.9 ± 4.5 yr) with Stage III-IV OC enrolled in an exercise feasibility study. Grip strength and gait speed were measured at up to 4 visits. The first 3 visits occurred *before* chemo cycles C1, C2, and C3. The 4th visit occurred *after* C3 and/or surgery for those who received neo-adjuvant chemotherapy. Four dichotomous (Yes/No) adverse events (AE) were recorded for each cycle: Hospitalization, Dose Reduction (DR), Treatment Delay, and Grade 3-5 Toxicity. After plotting individual gait speed and grip strength trajectories, we calculated gait speed change with each cycle (C1 Change = V2 gait speed – V1 gait speed). We stratified the sample by each AE, and used Wilcoxin rank sum test to compare AE & NO AE groups on gait speed change prior to that cycle. We then transformed gait speed and grip strength change to 5-pt scales (±2 = Moderate; ±1 = Small significant; 0 = No change) to test AE associations by Cochran-Armitage Trend Test (CATT). All alpha were 0.05.

Results: Decline in gait speed with Cycle 1 exceeded meaningful change of 0.05 m/s in 58% of women, while grip strength declined in 33%. Compared to women with no C3 dose reduction (DR), women with C3 DR (n=3, mean age 73) had 5-fold greater median gait speed decline in C1 [-0.28 vs -0.05 m/s, p=0.03], but 15-fold greater *improvement* in C2 [+0.36 m/s vs -0.02, p=0.036]. Ordinal grip change trend associated with DR and Treatment Delay at Visit 4 (CATT Exact p <0.001).

Discussion/Conclusions: In older ovarian cancer patients, large gait speed decline in chemo cycle 1 may predict the need for dose reduction in future cycles, even if gait speed recovers in cycle 2. These exploratory trajectories warrant further investigation, as they may inform clinical prediction of chemotherapy tolerance.

Relevance to Allied Health: Allied healthcare practitioners including physical and occupational therapists, speech language pathologists, audiologists, dietitians, and medical imaging specialists play a role in determining whether older cancer patients are appropriate for chemotherapy administration.