



Feasibility and impact of an exercise program on cancer cachexia and sarcopenia in patients with gynecologic primary malignancies



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Introduction

- Cancer cachexia is defined as weight loss resistant to nutritional intervention
- Sarcopenia is defined as loss of skeletal muscle
- Cancer cachexia is thought to affect up to 80% of cancer patient and may account for over 20% of cancer deaths
- Diagnosis of cancer cachexia is difficult in ovarian cancer
- Diagnostic criteria for cancer cachexia includes:
 - ✓ >5% weight loss in a 6-month period
 - ✓ BMI <20 and >2% weight loss in a 6-month period
 - ✓ SMI with sarcopenia and >2% weight loss in a 6-month period
- There is limited understanding of cancer cachexia rates in gynecologic cancers
- No current FDA-approved therapies are currently available for cancer cachexia; however, studies have shown the possibility of exercise as a therapy

Objectives

- Identify the rate of cachexia and sarcopenia in patients with uterine, ovarian, and primary peritoneal/fallopian tube cancers
- Identify the impact of a cancer exercise program (BfitBwell) on exercise and physical outcomes among patients with gynecologic malignancy with and without cachexia/sarcopenia

Methods

- Retrospective chart review was completed using the BfitBwell database at the CU Anschutz Medical Center
- Weight data was investigated from 6 months prior to BfitBwell enrollment and cachexia diagnosis
- CT scans pre- and post-enrollment to BfitBwell were examined
- Skeletal muscle index (SMI) was calculated using Slice-o-Matic software at the 3rd lumbar vertebrae (L3) level.
- Sarcopenia was categorized as less than 38.9 cm²/m²

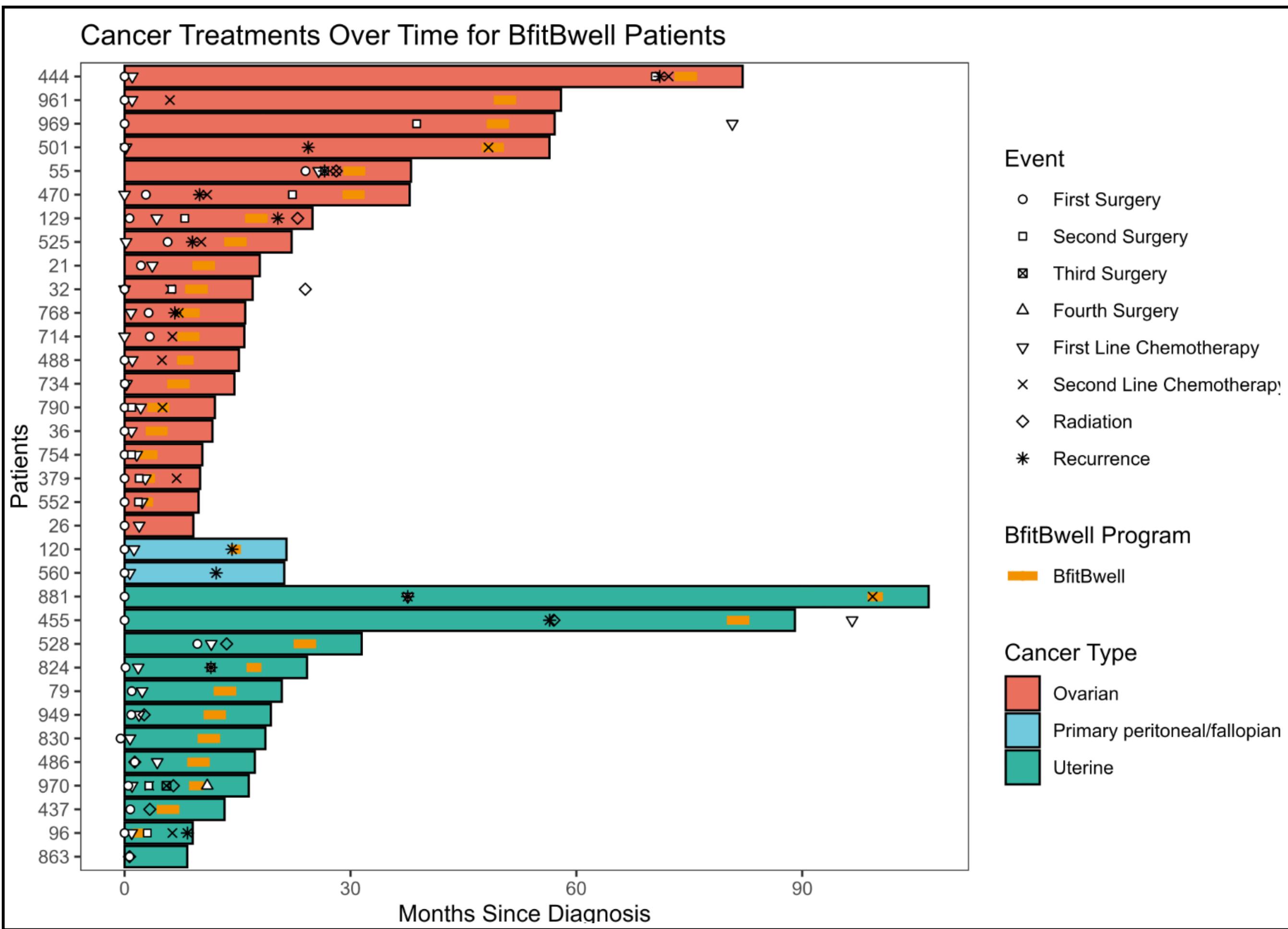
Results - 1

- Majority (n=21, 61.8%) of patients had ovarian cancer, followed by uterine (n=11, 33.3%) and primary peritoneal/fallopian (n=2, 5.9%) cancer
- A total of 34 patients with gynecologic malignancies were identified in the BfitBwell cohort
- Patients presented with an average age of 57
- Majority of patients identified as white (31, 91%) and non-hispanic (32, 94%)
- 75% (n=21) of patients completed at least 50% of a supervised session

Table 1: Cachexia and sarcopenia characteristics

Cachexia/Sarcopenia Characteristics	Mean (SD), N(%)
Presence of Cachexia, N (%)	16 (47%)
5% weight loss, N (%)	15 (44%)
2% weight loss + BMI ≤20kg/m ²	3 (8.8%)
Number of cachexia diagnostic criteria met, No (%)	
0	18 (53%)
1	9 (26%)
2	6 (18%)
3	1 (2.9%)
Average SMI before BFitBWell (kg/m ²)	43 (9)
Sarcopenia before BFitBWell, N(%)	13 (38%)
Average subcutaneous adipose tissue volume (cm ³)	73 (51)
Average visceral adipose tissue volume (cm ³)	32 (60)
BMI	
Underweight (>18.5)	1 (2.9%)
Normal weight (18.5-25.0)	16 (47%)
Overweight (25.1-30.0)	7 (21%)
Obese (>30.0)	10 (29%)

Figure 1: Swimmer plot for patients enrolled in BFitBWell



Results - 2

- Majority of patients had Stage 3 or 4 disease (n=26, 73.6%)
- n=18 (52.9%) patients were undergoing cancer targeted therapy at time of enrollment
- No statistically significant differences were noted between cachexia/sarcopenia and sociodemographic or cancer characteristics

Table 2: BFitBwell outcomes among patients with and without cachexia

BFitBwell Parameters	Without Cachexia (N=18)	With Cachexia (N=16)	P-value
SMI (kg/m ²)	42 (7)	43 (10)	>0.9
BMI	29.0 (8.2)	24.7 (5.9)	0.04
Average SAT volume (cm ³)	81 (53)	64 (48)	0.3
Average VAT (cm ³)	40 (82)	24 (20)	>0.9
Grip Strength, dominant (lb)	66 (12)	56 (13)	0.03
Sit to stand (reps)	16 (3)	15 (4)	0.3
Timed Up and Go (sec)	7.74 (1.31)	8.88 (2.21)	0.09
Normal Gait Speed (m/s)	1.45 (0.20)	1.27 (0.32)	0.07
6- minute walk test (m)	121 (30)	106 (23)	0.03
FACT-G	75 (15)	81 (16)	0.3
FACIT Fatigue	31 (12)	32 (12)	0.8
Pre post difference for BMI	-0.60 (2.18)	0.18 (0.60)	0.5
Pre post difference for dominant grip (lb)	1.2 (7.6)	-0.4 (5.0)	0.6
Pre post difference for sit to stand (reps)	3 (3)	6 (5)	0.12
Pre post difference for timed up and go (sec)	0.29 (1.43)	-1.08 (2.18)	0.2
Pre post difference for normal gait speed (m/s)	-0.02 (0.11)	0.26 (0.30)	0.02
Pre post 6-minute walk test (m)	21 (44)	10 (23)	0.6

Table 3: BFitBwell outcomes among patients with and without sarcopenia

BFitBwell Parameters	Without Sarcopenia (N=21)	With Sarcopenia (N=13)	P-value
SMI (kg/m2)	46 (41,49)	36 (34,37)	<0.001
BMI	25.8 (24.4, 33.9)	22.6 (21.3, 25.0)	0.012
Average SAT volume (cm ³)	76 (35,123)	57 (30,68)	0.4
Average VAT (cm ³)	19 (10,37)	13 (8,23)	0.4
Grip Strength, dominant (lb)	66 (11)	54 (13)	0.011
Sit to stand (reps)	16 (3)	16 (5)	>0.9
Timed Up and Go (sec)	7.78 (7.33, 8.82)	8.03 (7.40, 9.05)	0.5
Normal Gait Speed (m/s)	1.35 (1.28, 1.55)	1.44 (1.38, 1.56)	0.5
6- minute walk test (m)	119 (104, 129)	124 (110,141)	0.4
FACT-G	74 (17)	82 (13)	0.2
FACIT Fatigue	30 (12)	34 (12)	0.3
Pre post difference for BMI	0.10 (-0.71, 0.51)	0.70 (-0.04, 0.84)	0.2
Pre post difference for dominant grip (lb)	-0.8 (6.6)	5.2 (2.5)	0.014
Pre post difference for sit to stand (reps)	4(4)	5 (3)	0.6
Pre post difference for timed up and go (sec)	-0.64 (1.85)	0.79 (1.74)	0.2
Pre post difference for normal gait speed (m/s)	0.04 (-0.04, 0.15)	0.07 (-0.03, 0.44)	0.5
Pre post 6-minute walk test (m)	6 (-7, 18)	1 (-2.4)	0.6

Conclusions

- There is a 47% and 38% rate of cachexia and sarcopenia in this patient population
- Diagnosis of sarcopenia and cachexia are associated with different outcomes when patients undergo a supervised exercise program

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