Prevalence of Ovarian Cancer Cachexia in Patients Undergoing Debulking Surgery at the University of Colorado between 2014-2024

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Scope of the Study and Objectives

Background: Cancer associated cachexia (CAC), a multiorgan disease process mainly characterized by loss of body weight and muscle loss that is resistant to traditional nutritional supplementation, is associated with higher rates of adverse events after surgery, chemotoxicity, and poor quality of life. Evidence of CAC and its associated poor outcomes have been identified in patients with ovarian cancer, the deadliest gynecologic malignancy. Notably, the prevalence of cachexia in patients with ovarian cancer is not well characterized.

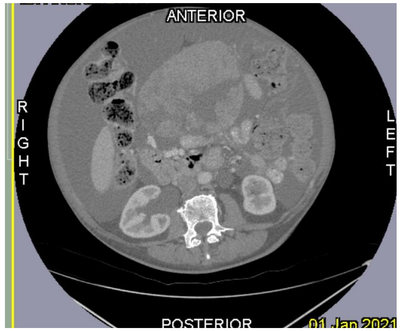

Figure 1: Ascites and sarcopenia in a patient with ovarian cancer

Methods: In this retrospective study, we aimed to identify the true prevalence of CAC in patients with epithelial ovarian cancer (EOC) who underwent cytoreductive surgery with a gynecologic oncologist at a large academic institution between 2014-2024 by exploring patient demographics associated with higher rates of CAC.

Definition of Cancer Cachexia

- Weight loss >5% over 6 months
- BMI <20 and weight loss >2%
- Skeletal muscle index consistent with sarcopenia and weight loss >2%

Skeletal Muscle Index-Sarcopenia Evaluation

Red: skeletal muscle -29 → +150
Green: intramuscular adipose -190 → -30
Yellow visceral adipose -150 → -50
Cyan: subcutaneous adipose -190 → -30

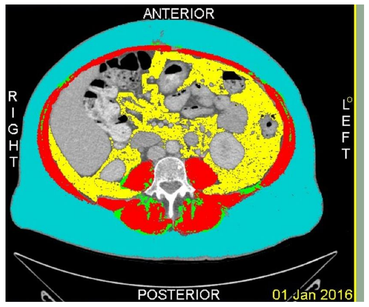

Table 1: Patient Demographics and Prevalence of CAC

Characteristics	Cachexia (n=191)	No cachexia (n=183)	P value
Age			
18 to 49	17 (8.9%)	30 (16.4%)	
50 to 69	110 (57.6%)	106 (57.9%)	
70 to 79	58 (30.4%)	41 (22.4%)	0.093 (Chi square test)
80+	6 (3.1%)	6 (3.3%)	
BMI			
<18.5	15 (7.8%)	0	**<0.0001** (Chi square test)
18.5-24.9	95(49.7%)	71(38.8%)	
25-29.9	51(26.7%)	51(27.9%)	
30+	27(14.1%)	59(32.2%)	
Race/Ethnicity			
Hispanic	21(11.0%)	22 (12.0%)	
Non-Hispanic White	163 (85.3%)	151 (82.5%)	0.66 (Chi square test)
Other	7(3.7%)	10 (5.5%)	
Histology			
Serous	159(83.2%)	133(72.7%)	**0.014** (Chi square test)
Non serous	32 (16.7%)	50(50.5%)	
FIGO classification			
I & II	21 (11.0%)	52 (28.4%)	
III	107 (56.0%)	88 (48.1%)	**<0.0001** (Chi square test)
IV	63 (33.0%)	43 (23.5%)	
Surgery type			
Primary cytoreductive surgery	76 (39.8%)	126 (68.9%)	
Interval cytoreductive surgery	115 (60.2%)	57 (31.1%)	**<0.0001 (Chi square test)**
P53 wild type	47 (36.2%)	61 (33.3%)	
P53 aberrant	130 (68.1%)	98 (55.5%)	**0.04** (Chi square test)
PreOperative Paracentesis	89 (46.6%)	30 (30.3%)	**<0.0001** (Chi square test)
No PreOperative Paracentesis	102 (53.4%)	153 (89.9%)	

Table 2: Adverse Events and Patient Demographics

Characteristics	No Adverse Event	Adverse Event	P value
Age			
18 to 49 (n=23)	8 (34.8%)	15 (65.2%)	
50 to 69 (n=120)	49 (40.8%)	71 (59.2%)	**0.0032** (Chi square test)
70 to 79 (n=62)	41 (66.3%)	21 (33.9%)	
80+ (n=5)	1 (20.0%)	4 (80%)	
BMI			
<18.5 (n=11)	6 (54.6)	5 (45.5%)	
18.5-24.9 (n=109)	50 (45.9%)	59 (54.1%)	0.68 (Chi square test)
25-29.9 (n=54)	29 (53.7%)	25 (46.3%)	
30+ (n=33)	14 (42.4%)	19 (57.9%)	
Histology			
Serous (n=180)	82(45.6%)	98(54.4%)	0.26(Chi square test)
Non Serous (n=30)	17(56.7%)	13(43.3%)	
FIGO classification			
I + II (n=26)	15 (57.7%)	11 (42.3%)	
III (n=117)	56 (47.9%)	61 (52.1%)	0.38 (Chi square test)
IV (n=67)	28 (41.8%)	39 (58.2%)	
Surgery type			
Primary cytoreductive surgery (n=91)	47 (51.7%)	44 (48.4%)	0.25 (Chi square test)
Interval cytoreductive surgery (n=119)	52 (43.7%)	67 (56.3%)	
P53 wild type (n=50)	33 (66%)	17 (34.0%)	**0.001** (Chi square test)
P53 aberrant (n=143)	57 (39.9%)	86 (60.1%)	
Pre Operative Paracentesis (n=83)	39 (47.0%)	44 (53.0%)	0.97 (Chi square test)
No Preoperative Paracentesis (n=127)	60 (47.2%)	67 (52.8%)	

Tables 1-2: BMI: body mass index; FIGO: International Federation of Gynecology and Obstetrics. Race and Ethnic Group were self reported. Percentages may not sum to 100 because of unknown data and rounding

Conclusion

- Cachexia is underdiagnosed in ovarian cancer
- ~50% of patients have CAC at the time of cytoreductive surgery
- Patients with cachexia and p53 mutations are at risk of increased chemotoxicity
- Providers must be educated on early identification of CAC
- Additional work is needed to initiate multimodal therapy for these patients

Acknowledgements

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