

MALNUTRITION AS A RISK FACTOR FOR POST-OPERATIVE MORBIDITY IN GYNECOLOGIC CANCER: ANALYSIS USING THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM (NSQIP) DATABASE

E-Poster Viewing

ORAL FEATURED POSTERS

Lecture Title:

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Objectives: Malnutrition increases risk of post-surgical morbidity in gynecologic malignancies. We assessed whether different malnutrition definitions are suitable for predicting morbidity in each cancer type.

Methods: Patients undergoing resection of ovarian, uterine, or cervical cancer between 2005-2019 were identified using the NSQIP database. Body mass index (BMI), weight loss, and albumin were used to evaluate whether patients met various malnutrition criteria (severe, ESPEN1, ESPEN2, ACS, mild, albumin<3.5g/dL; Figure). Outcomes included 30-day major post-operative complications, readmission, and reoperation. Modified Poisson regression was used to estimate the association between each definition and outcomes using risk ratios (RR) and 95% confidence intervals (CI).

Figure. Malnutrition definitions.

Severe Malnutrition BMI < 18.5 + weight loss*	ESPEN 1 If <70 yo: BMI 18.5-20 + weight loss* OR If ≥70 yo: BMI 18.5-22 + weight loss*	ESPEN 2 BMI < 18.5	ACS If <70 yo: BMI >20 + weight loss* OR If ≥70 yo: BMI >22 + weight loss*	Mild Malnutrition If <70 yo: BMI 18.5-20 OR If ≥70 yo: BMI 18.5-22	Albumin <3.5 g/dL
*weight loss is defined as loss of >10% body weight over 6 months prior to surgery					

Results: Ovarian cancer patients meeting ESPEN2 had higher risk of readmission (RR 1.69;1.29-2.20), reoperation (RR 2.53;1.70-3.77), and complications (RR 1.36; 1.20-1.54; Table). Uterine cancer patients meeting ACS had increased risk of readmission (RR 2.74;2.09-3.59), reoperation (RR 3.61;2.29-5.71) and complications (RR 3.92;3.40-4.53). For cervical cancer, albumin<3.5 was associated with readmission (RR 1.48;1.01-2.19), reoperation (RR 2.25;1.17-4.34), and complications (RR 2.59;2.11-3.17). Albumin<3.5 was also associated with increased risk of all outcomes for ovarian and uterine cancer

patients.

Table. Association between malnutrition definitions and outcomes by cancer presented as risk ratios and 95% confidence intervals.

	Uterine	Cervical	Ovarian
Major complication(s)¹			
Mild malnutrition	1.33 (1.14, 1.55)	1.69 (1.30, 2.18)	1.16 (1.07, 1.26)
Severe malnutrition	7.85 (6.10, 10.11)	4.83 (2.54, 9.21)	2.05 (1.66, 2.53)
ESPEN 1	3.65 (2.23, 5.97)	3.62 (1.53, 8.54)	1.65 (1.34, 2.01)
ESPEN 2	1.74 (1.36, 2.22)	1.92 (1.32, 2.79)	1.36 (1.20, 1.54)
ACS	3.92 (3.40, 4.53)	3.51 (2.49, 4.95)	1.67 (1.52, 1.82)
Albumin<3.5 g/dL ³	3.74 (3.48, 4.02)	2.59 (2.11, 3.17)	1.74 (1.65, 1.83)
Unplanned readmission²			
Mild malnutrition	1.17 (0.93, 1.48)	1.46 (1.00, 2.15)	0.96 (0.78, 1.18)
Severe malnutrition	---	---	---
ESPEN 1	---	---	---
ESPEN 2	1.15 (0.74, 1.79)	1.33 (0.71, 2.50)	1.69 (1.29, 2.20)
ACS	2.74 (2.09, 3.59)	2.45 (1.24, 4.82)	1.36 (1.06, 1.75)
Albumin<3.5 g/dL ³	2.38 (2.10, 2.69)	1.48 (1.01, 2.19)	1.28 (1.11, 1.47)
Unplanned reoperation²			
Mild malnutrition	0.98 (0.61, 1.58)	0.91 (0.38, 2.21)	0.95 (0.66, 1.38)
Severe malnutrition	---	---	---
ESPEN 1	---	---	---
ESPEN 2	1.25 (0.56, 2.77)	1.42 (0.46, 4.38)	2.53 (1.70, 3.77)
ACS	3.61 (2.29, 5.71)	2.23 (0.57, 8.69)	1.09 (0.65, 1.81)
Albumin<3.5 g/dL ³	2.56 (2.01, 3.25)	2.25 (1.17, 4.34)	1.31 (1.01, 1.70)
¹ Major complications included unplanned intubation, ventilator use >48 hours, sepsis, septic shock, pneumonia, deep incisional surgical site infection, acute renal failure, organ space surgical site infection, renal insufficiency, wound disruption, pulmonary embolism, myocardial infarction, cardiac arrest requiring CPR, stroke/cerebrovascular accident with neurological deficit, deep vein thrombosis, blood transfusion ² Outcome only available starting in 2011 ³ Only among the subset of patients with pre-operative serum albumin --- = models did not converge due to low event rate after dividing by malnutrition definition and cancer type			

Conclusions: The malnutrition definitions predicting the highest number of adverse post-operative outcomes varies by cancer type. Major complications, readmission, and reoperation were associated with BMI<18.5 alone for ovarian cancer (ESPEN2), with 10% recent weight loss and a normal or overweight BMI for uterine cancer (ACS), and with albumin<3.5 for all cancers. These criteria may be useful for cancer-specific pre-operative planning.

