Impact of sarcopenia on outcomes of locally advanced esophageal cancer patients treated with neoadjuvant chemoradiation followed by surgery

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INTRODUCTION

- Sarcopenia is the progressive and generalized loss of skeletal muscle
- It's significance is increasingly recognized and reported within the surgical and medical oncology fields
- It is now reported as an independent predictor of clinical outcomes in multiple gastrointestinal cancers
- Sarcopenia is being explored in surgical and medical oncology as a prognostic factor before treatment
- This study evaluated whether sarcopenia could be prognostic for grade 3 or greater toxicity, pathologic response, or overall survival in patients treated neoadjuvantly for esophageal cancer

METHODS

- Moffitt esophageal cancer patients treated with neoadjuvant chemoradiation followed by surgery from 2008-2012
- All patients received IMRT/IGRT utilizing dose painting to a total dose of 50.4/56 Gy in 28 fractions along with cisplatin and 5FU chemotherapy
- Sarcopenia was defined as the presence of a psoas area less than the median of the cohort
- ROC curve, logistic regression, chi square and Kaplan Meier estimates were used when appropriate

<u>Eligibility Criteria</u>

- CT imaging for planning including the L4 vertebral body
- 56 patients were included

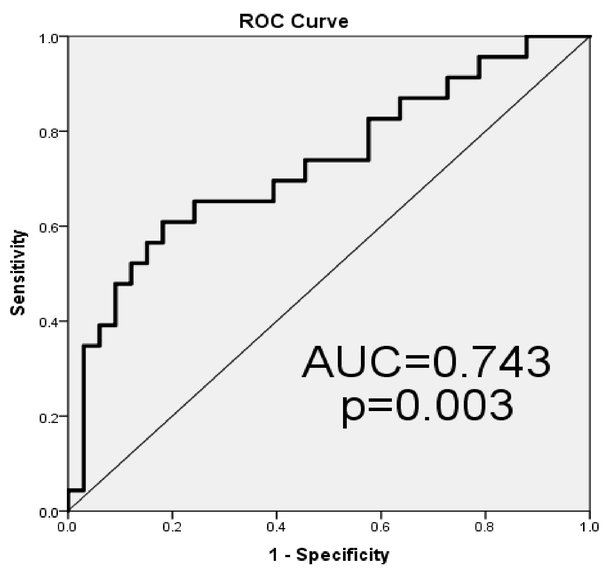
RESULTS

Table 1

		Total Psoas Area		
		<1373.6	>1373.6	
		No. of patients (%)		P
Total Patients		23	33	
Median age (range)		64 (47-81)	62 (30-81)	
Median Follow-up (months)		56.73	65.37	
Gender	Male	14 (25%)	33 (59%)	<0.001
	Female	9 (16%)	0	
Pathologic Complete Response	Not pathCR	11 (20%)	17 (30%)	0.786
	pathCR	12 (21%)	16 (29%)	
Favorable Pathologic Response	TRG 2/3	3 (5%)	7 (13%)	0.432
	TRG 0/1	20 (36%)	26 (46%)	
Acute Toxicity	Grade ≤2	8 (14%)	25 (45%)	0.002
	Grade 3+	15 (27%)	8 (14%)	

T1. Patient Characteristics

Figure 1



F1. ROC Analysis of Grade 3+ Toxicity

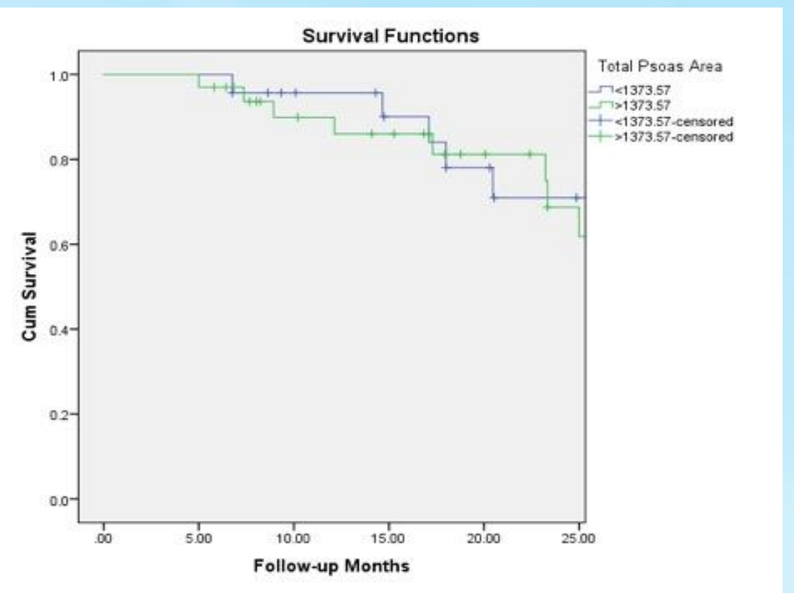
- Sarcopenia was predictive of
  - Grade 3 Toxicity
    - The smaller the psoas cross sectional area, the higher the chance of any grade 3 toxicity
    - Patients below our cutoff were 5.86 times more likely to develop a grade 3 or higher toxicity (p=0.003)
- Sarcopenia was not predictive of
  - Pathologic Response
  - Overall Survival (p=0.124)

Table 2

	Sarcopenic	Non-sarcopenic
Total Patients	23	33
Patients with G3 Toxicity	15	8
Dysphagia requiring feeding tube	10	6
Neutropenia	3	1
Hospitalization	2	0
Radiation Pneumonitis	0	1

T2. Toxicity

Figure 2



F2. Kaplan Meier Curve for Overall Survival

CONCLUSIONS / FUTURE DIRECTIONS

Sarcopenia may be a useful prognostic marker for radiation therapy, especially in esophageal cancer

- Risk Stratification
- Supportive/Nutritional Management
- Dose Escalation
- Quality of life benefit
- Further Validation

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