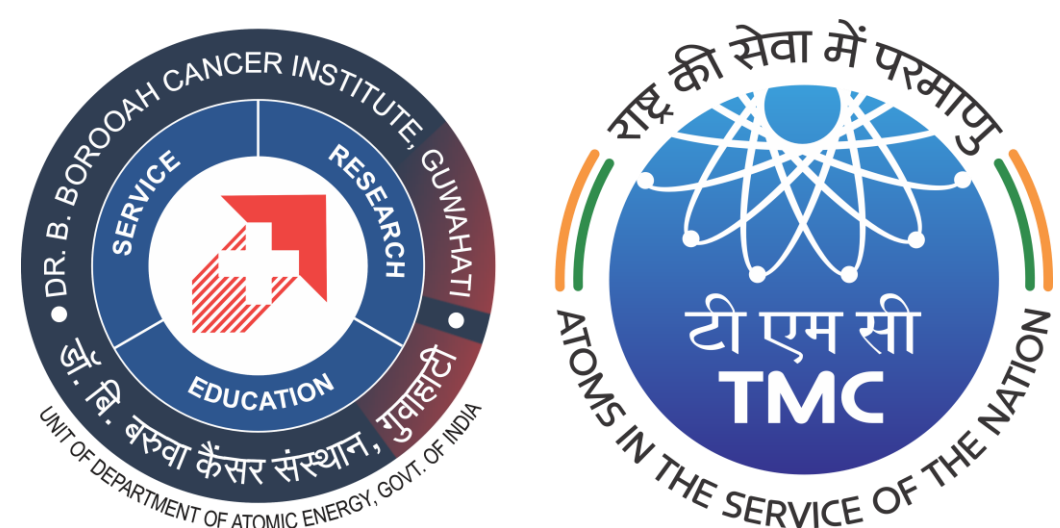




EVALUATING THE PREVALENCE OF SARCOPENIA BASED ON PSOAS MUSCLE INDEX IN PATIENTS UNDERGOING ESOPHAGECTOMY AND GASTRECTOMY: A RETROSPECTIVE OBSERVATIONAL STUDY



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INTRODUCTION

Sarcopenia, characterized by progressive loss of skeletal muscle mass and function, is increasingly recognized as an important predictor of adverse outcomes in cancer surgery. In patients with esophageal and gastric cancers, sarcopenia has been associated with increased postoperative complications, prolonged hospital stay, reduced tolerance to multimodality treatment, and poorer long-term survival. Computed tomography (CT)-based assessment of body composition at the L3 vertebral level provides an objective and reproducible method for identifying sarcopenia, with the Psoas Muscle Index (PMI) emerging as a simple and practical surrogate marker. The data from North-East India remain scarce despite the region's disproportionately high burden of esophageal squamous cell carcinoma.

STUDY OBJECTIVES

1. Determine CT-based PMI sarcopenia prevalence at baseline
2. Document serial PMI changes across neoadjuvant therapy
3. Assess impact on 30-day complications (Clavien dindo score) and Length of Stay (LOS).

METHODS

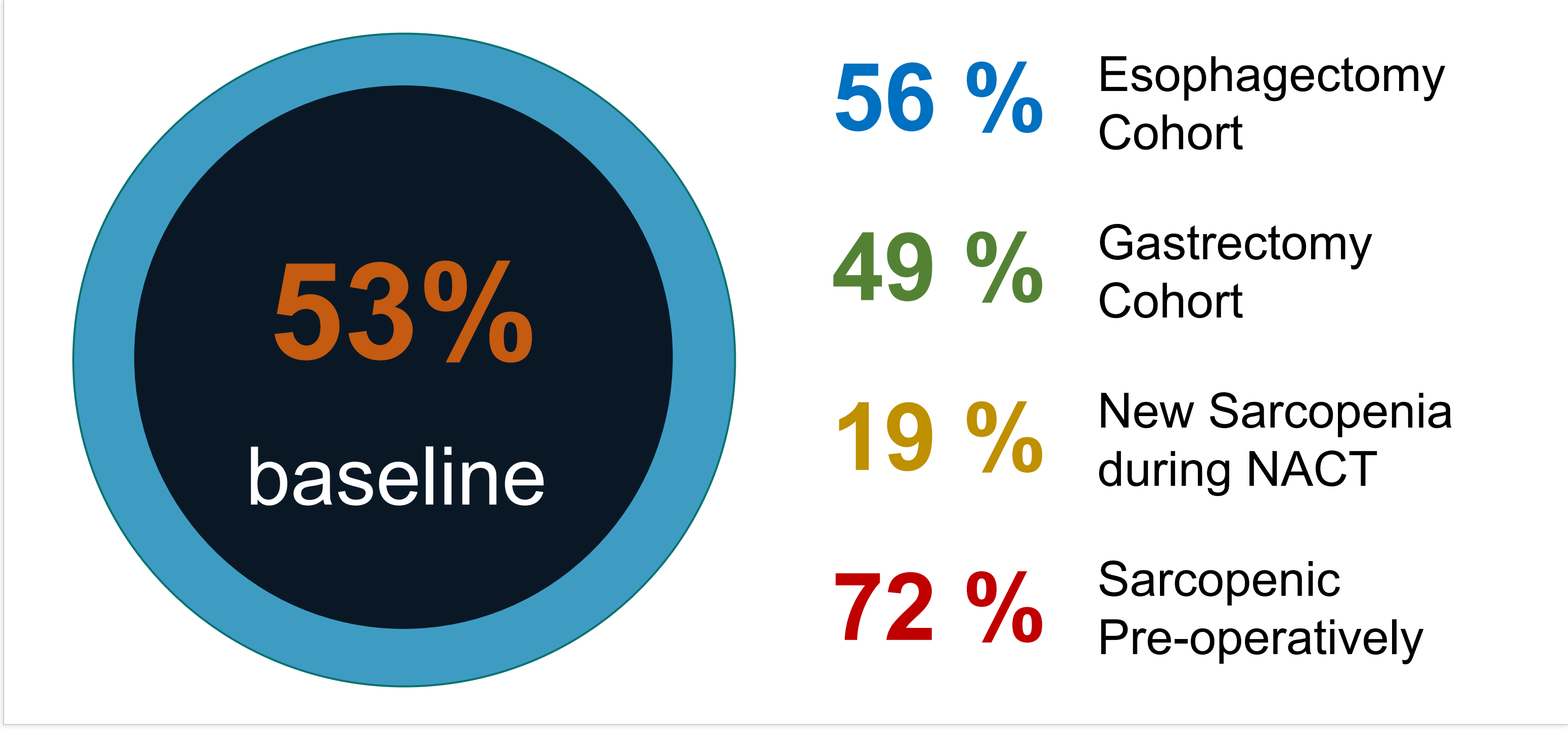
Design: Retrospective single-centre cohort — BBCI, Guwahati (Jan 2021 – Dec 2024)
Cohort: 85 patients; esophagectomy n≈50, gastrectomy n≈35; target n=200
PMI: Bilateral psoas area at L3 CT ÷ height² (cm²/m²); SLICE 3D; HU -29 to +150
Cut-offs: Males <6.36 cm²/m²; Females <3.92 cm²/m² (Hamaguchi 2016)
Regimens: FLOT, CAPOX, FOLFOX/nFOLFOX, NACRT, adjuvant chemotherapy
Stats: Mann–Whitney U, logistic regression, Cox PHR (SPSS v27)

PMI (cm²/m²) = Bilateral Psoas Area ÷ Height²

PATIENT CHARACTERISTICS (n=85)

Variable	Esoph (n≈50)	Gastr (n≈35)	Total
Age, median (range) yr	57 (32–81)	55 (33–77)	56 (32–81)
Male sex, n (%)	40 (80%)	26 (74%)	66 (78%)
BMI, median (IQR)	19.8	20.1	20.0
Albumin, median, g/dL	3.9 (3.4–4.5)	4.0 (3.5–4.5)	3.9
Stage III (A–C), n (%)	42 (84%)	29 (83%)	71 (84%)
ECOG PS 0–1, n (%)	47 (94%)	33 (94%)	80 (94%)
Baseline PMI, cm ² /m ²	4.1 (3.0–5.2)	4.3 (3.2–5.4)	4.2
Sarcopenia at baseline, n (%)	28 (56%)	17 (49%)	45 (53%)

SARCOPENIA PREVALENCE

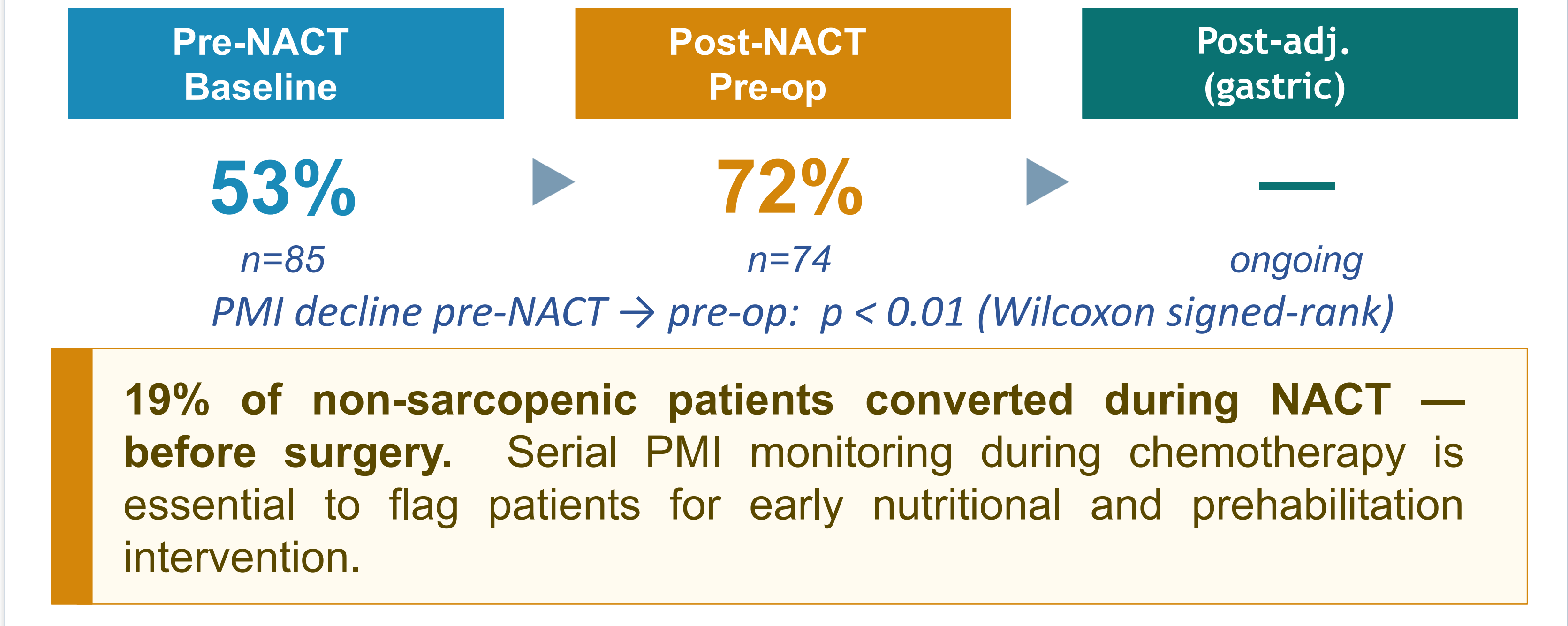


POSTOPERATIVE OUTCOMES

Outcome	Sarcopenic (n=45)	Non-sarc (n=40)	p
Major complications (CD≥III)	40%	20%	0.04
Prolonged LOS (≥14 days)	62%	28%	0.001
Pulmonary complications	27%	13%	0.09
Anastomotic leak	13%	8%	0.37
30-day mortality	4%	0%	0.17
Median LOS (days)	16 (12–22)	11 (9–15)	0.003

Multivariable regression: Sarcopenia → major complications OR 2.8 (p=0.03); prolonged LOS OR 4.1 (p=0.002)

SERIAL PMI : NACT-INDUCED DEPLETION



LITERATURE CONTEXT

Study1	Prev.	Comp.	Finding
Elliott 2017 (n=462)	59.7%	↑2×	OS 37 vs 114 mo
Huang 2020 (n=85)	68%	OR 2.59	LOS 32 vs 19 d
Zhuang 2019 (meta, n>3k)	Var.	OR 1.59	OS HR 1.55
Gunasekar 2021 (India, n=66)	33–57%	p=0.02	Unresectability
BBCI 2024 (present, n=85)	53%	OR 2.8	LOS 16 vs 11 d

CONCLUSION

- ✓ 53% Sarcopenia Prevalence**
First data from NE India — consistent with global benchmarks in this lean, locally advanced cohort (median BMI 20.0).
- 📊 Doubled Complication Risk**
OR 2.8 for major complications (p=0.03) and OR 4.1 for prolonged LOS (p=0.002) on multivariable analysis.
- 📈 NACT Depletes Muscle Mass**
19% of non-sarcopenic patients converted during NACT. Serial PMI monitoring is essential.
- 💡 Integration Required**
CT-PMI should be added to routine staging reports. Prehabilitation trials are urgently needed.

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- AI tool ChatGPT assisted in finding reference sources for this work.