DDW2025 Digestive Disease Week®
MAY 3–6, 2025 | SAN DIEGO, CA

Mesenteric Changes on Index CT Predict Oral Diet Intolerance in Acute Pancreatitis – Novel Mesenteric Based Classification System

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INTRODUCTION

- Acute pancreatitis (AP) presents a spectrum of clinical outcomes, with oral diet intolerance (ODI) serving as a critical barrier to recovery and discharge
- Traditional markers of disease severity in AP have been extensively studied; however, novel imaging-based predictors remain underexplored.

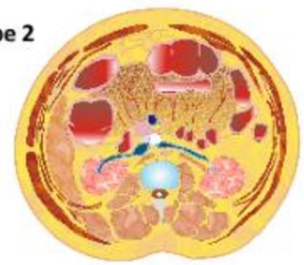
AIM

- Mesenteric changes observed on CT may reflect underlying disease severity and inflammation, potentially serving as an imaging biomarker. Our study **aims to evaluate whether mesenteric changes on initial CT can help predict ODI in patients with AP.**

METHODS

- Adult AP patients between 2018-2023 were identified from a prospective database of 375 patients.
- Patients were placed in two groups based on whether they had ODI, defined as requiring enteral nutrition or total parenteral nutrition (TPN).
- Patients were excluded if they did not have CT scan within 3 to 7 days of pain onset or if they did not have their index AP admission within our medical system.
- Two independent body imaging radiologists reviewed each CT and stratified the level of mesenteric inflammation with the following criteria.
    - Type 0: Normal mesenteric fat
    - Type 1: Mesenteric vascular engorgement
    - Type 2: Diffuse mesenteric fat stranding
    - Type 3: Diffuse mesenteric fat stranding with mass effect

	Oral Intolerance (N=10)	Tolerating Oral Intake (N=184)	OR	P-value
Gender, male	6 (60.0)	110 (59.8)	0.99	0.99
Age, median (IQR)	41.5 (36.25-56.5)	44 (33-57)	1.00	0.95
Race			-	0.72
White	9 (90.0)	152 (82.6)		
African American	0	14 (7.6)		
Native American	0	1 (0.5)		
Hispanic	0	9 (4.9)		
Asian/Pacific Islander	1 (10.0)	8 (4.4)		
Etiology of AP			-	0.44
Alcohol	7 (70.0)	94 (51.1)		
Biliary	1 (10.0)	39 (21.2)		
Idiopathic	1 (10.0)	42 (22.8)		
HTG	1 (10.0)	6 (3.3)		
Other	0 (0.0)	3 (1.6)		
BMI, median (IQR)	28.5 (25.4-35.1)	28.5 (25.1-34.6)	1.03	0.46
Tobacco Use	5 (50.0)	65 (35.3)	1.83	0.35
Alcohol Use	7 (70.0)	127 (69.0)	1.05	0.95
BISAP, mean	1.8	0.68	**3.23**	**<0.001**
Charlson Comorbidity, mean	1.4	1.15	1.09	0.62
Transfer from OSH	1 (10.0)	4 (2.2)	5.00	0.13
Total LOS during index admission, median (IQR)	10.75 (15.5-21.75)	3 (2-5)	**1.57**	**<0.001**
SIRs on admission	9 (90.0)	69 (37.5)	**15.00**	**<0.01**
Organ Failure on admission	4 (40.0)	8 (4.4)	**14.67**	**<0.001**
CV Failure during admission	2 (20.0)	2 (1.1)	**22.75**	**<0.001**
Respiratory Failure during admission	7 (70.0)	14 (7.6)	**28.33**	**<0.001**
NP after AP	6 (60.0)	15 (8.2)	**16.9**	**<0.001**
Recurrent AP	5 (50.0)	68 (37.0)	1.71	0.41
Severe Mesenteric Changes on CT	9 (90.0)	85 (46.2)	**10.48**	**<0.01**



CONCLUSIONS

- Severity of mesenteric changes on index CT was found to be an independent predictor of ODI on admission (aOR 15.1, 95% CI 1.2 – 186.8, P-value <0.04).
- This is a novel predictor which can be utilized to risk stratify these patients at the time of their admission thus preventing a delay in initiating proper nutrition.
- ODI is associated with longer length of hospital stay and more severe disease course - early intervention can help prevent morbidity associated with AP.