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Original Research

Association of Body Mass Index with Surgical Intervention in Intestinal Obstruction: A Prospective Clinical Study

[1]Dr. Abhishek Bandooni, [2]Dr. Poola Rahul, [3]Dr. Neha Sharma, [4]Dr. Aashay Dwivedi, [5]Dr. Neha Saraswat

[1,2,3]RSO3, [5]RSO 1, Department of Surgery, Shyam Shah Medical College, Rewa, India
[4]RSO 3, Department of General Surgery, SSMC Rewa, India

Corresponding author
Dr. Aashay Jagdishbhai Dwivedi
RSO 3, Department of General Surgery, SSMC Rewa, India
Email - Aashay20sep@gmail.com

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Abstract
Intestinal obstruction (IO) is a common surgical emergency[1]. While many factors influence management, Body Mass Index (BMI) has emerged as a potential determinant in surgical decision-making.To examine the relationship between BMI and the likelihood of requiring surgical intervention in patients with intestinal obstruction.A prospective study involving 385 patients diagnosed with IO was conducted at Shyam Shah Medical College, Rewa (M.P.), from September 2022 to March 2024. Patients were categorized based on BMI and management type—conservative or surgical.Overweight individuals (BMI 25–29.9) formed the majority of the cohort. Although overweight and obese patients were more frequently managed surgically, the association between BMI and surgical intervention was not statistically significant (p = 0.073). While higher BMI appears associated with a greater tendency for surgical management in IO, this relationship was not statistically significant in our study. Further multicentric trials may help validate BMI as a prognostic indicator in surgical triage.

Keywords: Intestinal Obstruction, Body Mass Index, Surgical Risk, Overweight, Obesity

Introduction

Intestinal obstruction (IO) is a frequent cause of emergency surgical admission and demands prompt diagnostic evaluation. While radiological and clinical signs often guide intervention, demographic and nutritional factors like Body Mass Index (BMI) may influence presentation and outcomes. Obesity is known to impact the incidence of postoperative complications and recovery; however, its role in the decision to operate remains unclear.

This study explores the correlation between BMI and surgical intervention in IO, aiming to determine whether higher BMI influences management strategies.

Materials and Methods

Study Design: Prospective observational
Study Period: September 2022 – March 2024
Location: Department of Surgery, Shyam Shah Medical College & Sanjay Gandhi Memorial Hospital, Rewa
Sample Size: 385 patients with confirmed IO

Inclusion Criteria:
Age 6 months to 80 years
Diagnosed IO (clinical + radiological)
Hospital stay ≥2 days

Exclusion Criteria:
- Malignancy, tuberculosis, or diabetes
- Congenital GI anomalies
- Patients not consenting

BMI Classification (WHO Criteria):
- Underweight: <18.5
- Normal: 18.5–24.9
- Overweight: 25–29.9
- Obese: ≥30

Data Collection & Analysis: Patients were grouped by BMI category. Outcomes were measured as either conservative or surgical management (laparotomy). SPSS v21.0 was used for analysis; $p < 0.05$ was considered significant.

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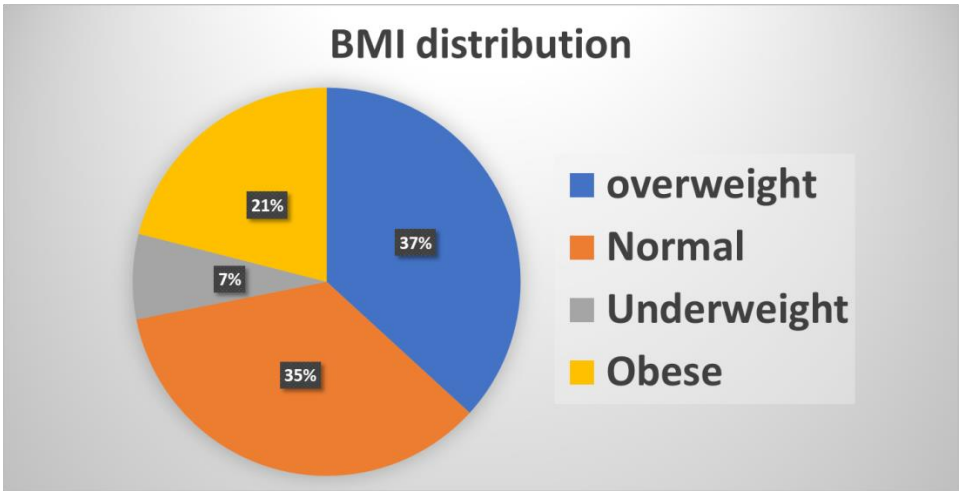
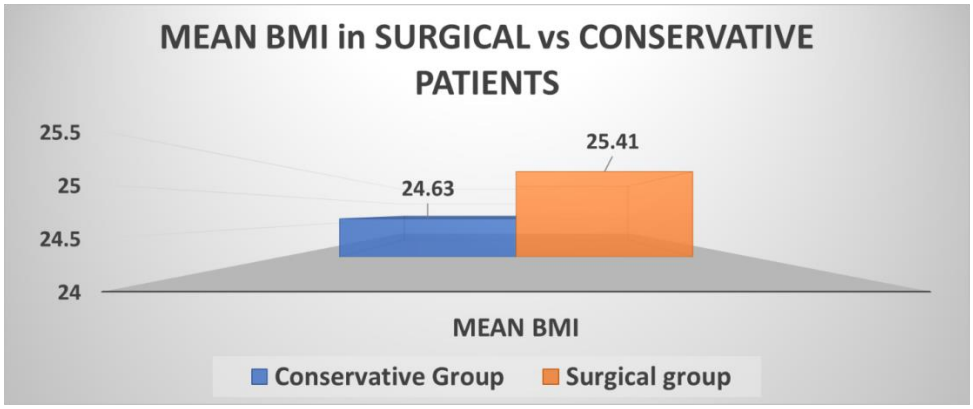
Results

BMI Distribution:
Overweight: 43.11%
Normal: 41.55%
Underweight: 8.31%
Obese: 7.01%

Surgical Intervention Rates by BMI:
Overweight patients formed the largest proportion of laparotomy cases.
p-value = 0.073 (not statistically significant).

Mean BMI in Surgical vs. Conservative Groups:
Surgical: 25.41
Conservative: 24.63





Discussion

Although not statistically significant, overweight and obese individuals showed a higher tendency to require surgical intervention. This may reflect increased intra-abdominal pressure, altered bowel motility, or more severe presentations due to delayed care.

The lack of statistical significance could be attributed to limited sample size or regional dietary/genetic influences. However, BMI remains an easily measurable clinical parameter that may contribute to triage decisions when used with other risk factors.

Schetz M et al. (2019)[1] reported that higher BMI is associated with greater perioperative morbidity and a higher likelihood of surgical interventions in critical care settings.

Mullen JT et al. (2009)[2] offered a counterpoint, suggesting both underweight and overweight patients may need surgery, though high BMI was not always associated with worse outcomes.

Conclusion

BMI alone does not significantly predict surgical intervention in intestinal obstruction but may indicate a trend toward increased surgical need among overweight patients. Future studies with larger, multicentric populations are recommended to better establish BMI's role in IO management strategies.

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