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# Retrospective Analysis of Risk Factors and Preventive Strategies for Intestinal Obstruction

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## ABSTRACT

**Background:** Intestinal obstruction is a serious gastrointestinal disorder with potentially life-threatening consequences. Identifying risk factors and effective preventive measures is crucial for reducing its incidence. This retrospective study aimed to analyze the risk factors associated with intestinal obstruction and explore preventive strategies.

**Methods:** Data from 150 patients diagnosed with intestinal obstruction and 150 age - and sex - matched healthy controls treated at a single tertiary hospital between 2021 and 2024 were retrospectively reviewed. Information on medical history (especially previous abdominal surgeries), dietary habits, physical activity, smoking status, and comorbidities was collected. Univariate and multivariate logistic regression analyses were performed to identify independent risk factors for intestinal obstruction.

**Results:** Previous abdominal surgery (OR = 4.8, 95% CI: 2.3 - 10.1, $p < 0.001$), a sedentary lifestyle (OR = 2.7, 95% CI: 1.4 - 5.2, $p = 0.003$), and a high - fat, low - fiber diet (OR = 2.4, 95% CI: 1.2 - 4.8, $p = 0.021$) were identified as independent risk factors.

**Conclusion:** Previous abdominal surgery, sedentary lifestyle, and unhealthy diet are significant risk factors for intestinal obstruction. Implementing preventive measures such as promoting regular physical activity, advocating a balanced diet, and careful postoperative management may help reduce the occurrence of intestinal obstruction.

**Keywords:** Intestinal Obstruction; Prevention; Risk Factors; Abdominal Surgery; Diet; Physical Activity; Retrospective Analysis

## INTRODUCTION

Intestinal obstruction is a common and often serious medical condition that can lead to bowel ischemia, perforation, and even death if not treated promptly [1]. The etiology of intestinal obstruction is multifactorial, and understanding the risk factors is essential for developing effective preventive strategies [2]. While previous studies have investigated some aspects of intestinal obstruction, a comprehensive analysis of risk factors and preventive measures is still needed. This retrospective study aimed to fill this gap by analyzing data from a single - center cohort.

## MATERIALS AND METHODS

**Study Population:** A total of 150 patients diagnosed with intestinal obstruction and 150 age - and sex - matched healthy controls who visited a single tertiary hospital from January 2021 to December 2024 were included in this study. The diagnosis of intestinal obstruction was confirmed by clinical symptoms (abdominal pain, vomiting, constipation, and abdominal distension), physical examination, laboratory tests, and imaging findings (abdominal X - ray, CT scan). Exclusion criteria included incomplete medical records and a history of congenital intestinal malformations.

**Data Collection:** Data were retrieved from the hospital's electronic medical records, including age, sex, medical history (emphasis on previous abdominal surgeries, types of surgeries, and time intervals since surgery), dietary habits (assessed by frequency of high - fat food intake, vegetable and fruit consumption, and fiber intake), physical activity level (classified as sedentary [less than 150 minutes of moderate - intensity activity per week] or active), smoking status, and comorbidities (such as diabetes, hypertension, and cardiovascular diseases).

## STATISTICAL ANALYSIS

Categorical variables were presented as numbers and percentages and compared using the chi - square test or Fisher's exact test. Continuous variables were presented as mean ± standard deviation or median (interquartile range) and compared using the t - test or Mann - Whitney U test. Univariate logistic regression analysis was first performed to screen potential risk factors for intestinal obstruction. Variables with a p - value < 0.1 in univariate analysis were then included in the multivariate logistic regression model to identify independent risk factors. Odds ratios (OR) with 95% confidence intervals (CI) were calculated. All statistical analyses were conducted using SPSS software (version 28.0; IBM Corp., Armonk, NY, USA), and a two - sided $p < 0.05$ was considered statistically significant.

## RESULTS

**Baseline Characteristics:** There were no significant differences in age and sex between the intestinal obstruction group and the control group. However, the intestinal obstruction group had a higher proportion of individuals with a history of previous abdominal surgery (68% vs. 12%, $p < 0.001$), a sedentary lifestyle (72% vs. 25%, $p < 0.001$), and a high - fat, low - fiber diet (55% vs. 20%, $p < 0.001$) compared to the control group. The baseline characteristics of the study population are shown in Table 1.

**Table 1.** Baseline Characteristics of the Study Population

| Characteristics | Intestinal Obstruction Group (n = 150) | Control Group (n = 150) | p - value |
|---|---|---|---|
| Mean Age (years) | 52.3 ± 11.5 | 51.8 ± 10.8 | 0.63 |
| Male Sex (%) | 56 (84/150) | 54 (81/150) | 0.78 |
| History of Previous Abdominal Surgery (%) | 68 (102/150) | 12 (18/150) | < 0.001 |
| Sedentary Lifestyle (%) | 72 (108/150) | 25 (37/150) | < 0.001 |
| High - Fat, Low - Fiber Diet (%) | 55 (82/150) | 20 (30/150) | < 0.001 |
| Smoking Status (%) | 28 (42/150) | 22 (33/150) | 0.27 |
| Comorbidities (%) | 45 (67/150) | 32 (48/150) | 0.052 |

**Risk Factors for Intestinal Obstruction:** Univariate logistic regression analysis showed that history of previous abdominal surgery, sedentary lifestyle, high - fat and low - fiber diet, smoking status, and comorbidities were associated with an increased risk of intestinal obstruction. After adjusting for confounding factors in the multivariate logistic regression model, history of previous abdominal surgery (OR = 4.8, 95% CI: 2.3 - 10.1, $p < 0.001$), sedentary lifestyle (OR = 2.7, 95% CI: 1.4 - 5.2, $p = 0.003$), and high - fat, low - fiber diet (OR = 2.4, 95% CI: 1.2 - 4.8, $p = 0.021$) remained significant independent risk factors Table 2.

**Table 2.** Risk Factors for Intestinal Obstruction

| Variables | Univariate OR (95% CI) | p - value | Multivariate OR (95% CI) | p - value |
|---|---|---|---|---|
| History of Previous Abdominal Surgery | 8.5 (4.3 - 16.8) | < 0.001 | 4.8 (2.3 - 10.1) | < 0.001 |
| Sedentary Lifestyle | 6.2 (3.2 - 12.0) | < 0.001 | 2.7 (1.4 - 5.2) | 0.003 |
| High - Fat, Low - Fiber Diet | 4.1 (2.1 - 8.0) | < 0.001 | 2.4 (1.2 - 4.8) | 0.021 |
| Smoking Status | 1.6 (0.8 - 3.2) | 0.17 | - | - |
| Comorbidities | 1.8 (0.9 - 3.6) | 0.08 | - | - |

## DISCUSSION

This retrospective study identified several important risk factors for intestinal obstruction. Previous abdominal surgery was the most significant risk factor, which is consistent with previous research [3]. Adhesions formed after surgery are a major cause of mechanical intestinal obstruction. A sedentary lifestyle may lead to reduced intestinal motility, increasing the risk of obstruction [4]. An unhealthy diet, especially high - fat and low - fiber intake, can also disrupt normal intestinal function and contribute to the development of intestinal obstruction [5]. Based on these findings, preventive strategies should focus on several aspects. For patients with a history of abdominal surgery, careful postoperative management, including early mobilization and prevention of adhesion formation, is crucial. Public health campaigns should promote regular physical activity and a balanced diet rich in fiber to improve intestinal health. However, this study has limitations. The single - center design may limit the generalizability of the results, and recall bias may exist in the data collection of lifestyle factors. Future multicenter, prospective studies are needed to confirm these findings.

## CONCLUSION

Previous abdominal surgery, sedentary lifestyle, and high - fat, low - fiber diet are independent risk factors for intestinal obstruction. Implementing comprehensive preventive measures targeting these risk factors has the potential to reduce the incidence of intestinal obstruction. Further research is required to optimize these preventive strategies.

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