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Association between Neutrophil-Lymphocyte Ratio and Failure of Conservative Medical Treatment in Patients with Intestinal Obstruction Due to Abdominal Cancer

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ABSTRACT

Background: Intestinal obstruction due to abdominal cancer is a common clinical problem, with an overall incidence ranging from 3% to 15%, with colorectal cancer and ovarian cancer being the most frequent. The diagnosis of this condition primarily relies on the patient's established history of abdominal oncological disease, as well as radiological and laboratory tests, which are key factors in decision-making regarding the choice between conservative or radical treatment. The importance of these decisions has led to the need for the development of new evaluation strategies to guide treatment in this group of patients.

Objective: To determine the association between the neutrophil-lymphocyte ratio and the failure of conservative medical treatment in patients with intestinal obstruction due to abdominal cancer. Materials and Methods: An associative study was conducted at the General Hospital of Zone No. 3 of the Instituto Mexicano del Seguro Social, Aguascalientes, México, from January 2017 to January 2024. The study included patients aged 18 to 100 years with a diagnosis of abdominal cancer and intestinal obstruction. After approval from the Local Health Research Committee and the Ethics Committee in Health Research, a review of the census from the General Surgery department was conducted to identify patients who met the inclusion criteria. The variables collected for the study were: sex, age, diagnosis of intestinal obstruction, type of abdominal cancer, time of onset of intestinal obstruction symptoms, and neutrophil-lymphocyte ratio. The neutrophil-lymphocyte ratio was calculated from the sample and correlated with the clinical outcome in relation to the success or failure of the medical treatment. The data was entered into an Excel spreadsheet and analyzed using the IBM SPSS statistical software.

Results: Of the 14 patients with intestinal obstruction and abdominal cancer, 8 were treated surgically and 6 conservatively. It was observed that a neutrophil-lymphocyte ratio ≥ 4 was associated with a higher likelihood of requiring surgical resolution.

Conclusion: An elevated neutrophil-lymphocyte ratio (≥4) was found to be associated with a greater likelihood of requiring surgical treatment, while patients with a neutrophil-lymphocyte ratio ≤ 3.9 tended to be treated conservatively. These results suggest that the neutrophil-lymphocyte ratio could be a useful marker to guide therapeutic decisions, although further studies are needed to strengthen its predictive value.

ARTICLE DETAILS

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THEORETICAL FRAMEWORK

Scientific Background

A literature search was conducted in specialized databases, including MEDLINE, EMBASE, CENTRAL, ClinicalTrials.gov, and LILACS, using the specialized search engines PubMed, Cochrane Library, BVS, and Google Scholar. In PubMed, Cochrane, and Google Scholar, the publication date was limited to articles published between 2018 and 2023. The descriptors used in the search were "bowel obstruction," "malignant bowel obstruction," "conservative management," "surgical management," "predictors," "predictive criteria," and "neutrophil-lymphocyte ratio." A total of 52 articles were retrieved. Each article was classified by type, and those considered irrelevant to the research topic were discarded. After eliminating irrelevant studies, 4 articles were considered, and following a snowballing effect, 4 additional articles were added to the review, resulting in a total of 6 articles for final consideration. A PRISMA diagram was created (Figure 1). The selected articles provide relevant evidence on the research topic, and their findings can be compared with the data obtained in our study. The following are the selected sources that will serve as the reference framework for this research

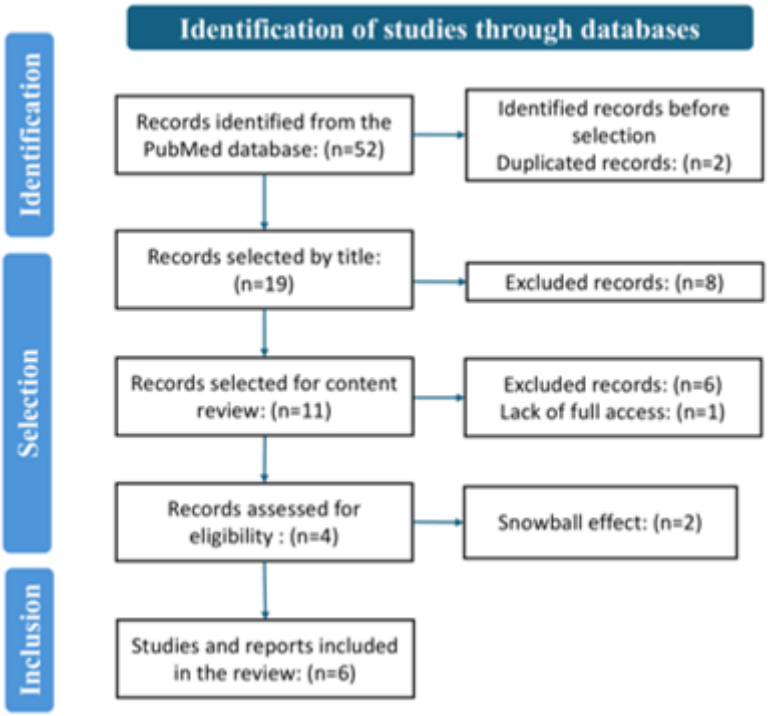

Figure 1: PRISMA diagram.

BACKGROUND

In 2020, Kaiying Yu conducted a retrospective analytical study to explore the factors associated with the prognosis of conservative and surgical treatments at a single institution. The study took place at the Shijitan Hospital in Beijing and analyzed cases of malignant intestinal obstruction between June 2017 and October 2019, assessing demographic factors, management, and patient prognosis based on the choice of treatment (either conservative or surgical). The convenience sample included a total of 64 patients (27 men and 37 women), of whom 16 (25%) received conservative treatment, while 48 (75%) underwent surgical treatment. Regarding the location of the primary tumor, colon cancer had the highest incidence (n=23), followed by peritoneal cancer (n=9), gastric cancer (n=7), uterine cancer (n=5), and ovarian cancer (n=4).

Significant differences were observed in the length of hospital stay and medical costs between the surgical and conservative groups ($P<0.05$). However, no significant differences were found in survival between the two groups. It was noted that prior chemotherapy was significantly associated with survival status ($P=0.032$, OR=12.443, 95% CI=1.247–124.132). The study highlighted that while surgery may be beneficial for restoring gastrointestinal flow, it does not necessarily improve long-term survival in patients with malignant intestinal obstruction. It was suggested that further research is needed to understand and improve therapeutic approaches for malignant intestinal obstruction. The conclusion was that the choice of surgery may not improve overall survival, implying that non-surgical procedures could be preferable for patients with intestinal obstruction. (1)

In 2022, Coco D. conducted an analytical investigation to describe the role of the prognostic scoring index in managing small bowel obstruction (SBO) to guide surgical treatment

decisions in this population and prevent complications. This article reviews small bowel obstruction as a significant cause of morbidity and mortality, with considerable medical costs. It emphasizes that SBO is predominantly caused by postoperative adhesions. The importance of distinguishing between functional and mechanical obstructions was discussed, along with the challenges in diagnosis and management, including the use of imaging such as CT scans. Several scoring models developed by various authors to predict the need for surgical intervention and mortality related to intestinal obstruction were reviewed.

One example is the study by Huang et al., which aimed to develop a model to predict the risk of strangulated small bowel obstruction (SSBO). A total of 417 patients with clinically confirmed small bowel obstruction were included. Logistic regression analysis identified variables such as body temperature ≥38°C, positive peritoneal irritation, white blood cell (WBC) count > 10.0×10^9/l, thickened small bowel walls ≥ 3 mm, and ascites, which were significantly associated with SSBO. It concluded that this model is a good predictor for evaluating SBO severity. The study also noted that the incidence of intestinal resection was higher in patients who underwent surgery more than 24 hours after symptoms onset. Those treated within 24 hours had a 12% resection rate, while those treated later had a 29% resection rate. (2)

Jon C. Henry JC conducted a 2012 retrospective analytical study to identify predictive factors for short- and long-term outcomes in patients with malignant bowel obstruction (MBO). Two scoring tools were developed to assist clinical decision-making: one for predicting 30-day mortality and another for determining the suitability of surgical intervention. These tools were based on factors like the presence of ascites, hypoalbuminemia, leukocytosis, and the type of intestinal obstruction. The study was conducted at Ohio State University Medical Center between 2000 and 2007, including patients diagnosed with solid tumor malignancies and bowel obstruction. It included 523 patients, 324 of whom underwent surgical treatment, and 199 received non-surgical treatment. Demographic data showed similar results between the two groups, except that male sex predominated in the surgical group (48.8%, P=0.015). A significantly higher number of gynecological cancers were found in the non-surgical group (32.6% vs. 17.6%, P < 0.001). Laboratory values showed no significant differences in leukocyte counts, but serum albumin levels were significantly higher in surgical patients (P = 0.001). Hospital stay was longer for the surgical group (11 days vs. 8.4 days for the non-surgical group, P < 0.001). However, reobstruction was twice as common in non-surgically treated patients (P < 0.001).

Univariate regression analysis identified factors like hypoalbuminemia (<3 g/dL), peritoneal carcinomatosis on imaging, and large bowel obstruction that were significantly associated with a decrease in return to oral intake. Multivariable analysis found that large bowel obstruction on radiographic imaging was associated with a successful return to oral intake at discharge (OR=4.97, 95% CI=1.13-21.9, P=0.034). The study also sought predictors for early mortality (30-day mortality). Factors such as hypoalbuminemia (P < 0.001), ascites (P < 0.001), carcinomatosis (P < 0.001), non-surgical treatment (P = 0.003), and leukocytosis (P = 0.001) were associated with increased 30-day mortality. Hypoalbuminemia (P < 0.001), ascites (P = 0.008), and carcinomatosis (P = 0.019) remained significant predictors in multivariable analysis. These findings provide valuable information for selecting the most appropriate treatment for MBO patients, aiding surgeons in decision-making and improving clinical outcomes. (3)

In 2023, Zi Qin Ng conducted an analytical study examining small bowel obstruction (SBO) as a common presentation in emergency surgery, particularly due to adhesions or incarcerated hernias. The study highlighted a paradigm shift toward conservative treatment in these patients, though surgical intervention may still be necessary in some cases. It was a retrospective study at St John of God Midland Hospital, Western Australia, assessing patients with SBO secondary to adhesions. A total of 252 patients were included, excluding other causes of SBO and patients under 16 years. Two groups were compared: surgical (including immediate surgery or failure of conservative management) and non-surgical. Demographic, clinical, laboratory, and imaging data were collected to identify predictors for successful conservative management.

The findings showed that age, comorbidities, and clinical presentation did not differ significantly between groups. Laboratory tests, including inflammatory markers and lactate levels, were similar in both groups. However, factors such as a definitive transition point on CT (OR=2.67, 95% CI: 0.98-7.32, P=0.048), free fluid (OR=2.11, 95% CI: 1.15-3.89, P=0.015), and absence of small bowel feces sign (OR=1.70, 95% CI: 1.01-2.88, P=0.047) were associated with the need for surgical intervention. The administration of water-soluble contrast was associated with higher success in non-surgical management. The study emphasized the importance of CT findings and the use of water-soluble contrast as effective predictors to guide decision-making in SBO management due to adhesions. (4)

In 2020, Young Jae Cho conducted a retrospective study mentioning intestinal adhesions as the most common cause of intestinal obstruction, followed by malignancies. It analyzed the clinical and laboratory characteristics of patients admitted to the surgery department at Sanggye Paik Hospital, Inje University, Seoul, Korea, between January 1, 2015, and December 31, 2016, diagnosed with small bowel obstruction (SBO). A total of 108 patients were included, divided into two groups based on conservative (n = 96) or surgical (n = 12) treatment to identify predictive factors for early surgical intervention. The analysis showed that the number of prior surgeries, leukocyte count, C-reactive protein (CRP) levels,

and body mass index (BMI) were significant factors in patients undergoing surgery. Elevated leukocyte and CRP levels (P=0.004 and P=0.028, respectively) were associated with greater inflammation severity and the need for surgery. A logistic regression analysis identified the number of prior surgeries as an independent factor predicting the need for surgery (OR=7.50, 95% CI=1.75-32.21, P=0.007). Early identification of patients requiring surgery may improve their therapeutic prognosis. (5)

Cato, L. D. conducted a descriptive study in 2020 aimed at characterizing patients with malignant small bowel obstruction (mSBO) at a tertiary care center in the UK over a 10-year period. The study examined various treatment options, including palliative surgery, total parenteral nutrition (TPN), gastrografin, and dexamethasone, as well as preoperative stratification. The study included patients with mSBO confirmed by CT imaging due to primary or metastatic neoplasms. Data were analyzed to observe treatment effects on survival. The study included 94 patients, most of whom died during the study period. Palliative surgery was common, with around 53% of patients undergoing surgery: 70% had bypass surgery, 24% had stoma formation, and 6% had open and closed laparotomies. Survival analysis revealed significant differences between the surgical and non-surgical groups (p = 0.00018). Patients who underwent surgery had a 50% survival rate of 107.32 days, compared to 47.87 days for non-surgical patients. The study also noted that patients with primary colorectal cancer were more

METHODOLOGY

Study Universe

An association study was conducted at the Hospital General de Zona 3 (IMSS) in Aguascalientes, with data collected from 2017 to 2024 for patients diagnosed with intestinal obstruction due to abdominal cancer.

Study Population

Patients affiliated with the Hospital General de Zona No. 3, Aguascalientes, aged between 18 and 100 years, of both genders, diagnosed with intestinal obstruction due to abdominal cancer, who received conservative medical treatment during the period from March 2017 to March 2024.

Sample Size Calculation

Taking into account the international prevalence of intestinal obstruction in patients with abdominal cancer (up to 15%), the sample size was calculated using the SELECT STATISTICAL SERVICE calculator, resulting in 7 patients for a finite population proportion, with a 95% confidence level and a 5% margin of error.

$$n = \frac{N * Z\frac{2}{\alpha} * p * q}{e^2 * (N-1) + Z\frac{2}{\alpha} * p * q}$$

Where:

N = finite population size

Z = 95% confidence level (Z α is 0.20, and the critical value is 1.28)

e = maximum acceptable estimation error of 5%

p = probability of the event occurring (50%)

q = (1 – p) = probability of the event not occurring (50%)

n = sample size

SELECTION CRITERIA

Inclusion Criteria

- Patients diagnosed with intestinal obstruction due to abdominal cancer at the Hospital General de Zona No. 3, IMSS, Aguascalientes.
- Patients with a diagnosis of primary or metastatic abdominal cancer, with histopathological confirmation.
- Patients of both genders.
- Patients aged between 18 and 100 years.
- Patients with a complete blood count upon admission.

Exclusion Criteria

- Patients who have been managed conservatively for more than 72 hours.
- Patients without a complete blood count upon admission.

Elimination Criteria

- Patients for whom, after a comprehensive approach, it is confirmed that the cause of intestinal obstruction is not secondary to abdominal cancer.
- Patients with incomplete data in their medical records.

Study Description:

An associative study was conducted at the General Hospital of Zone No. 3, IMSS, Aguascalientes, with prior authorization from the head professor of the General Surgery service and the head of education at the aforementioned hospital. Requests for participation from the principal investigator and associated researchers were submitted. The study was reviewed and approved by the Research Ethics Committee and the Local Health Research Committee via the institutional platform SIRELCIS. Following approval, authorization was requested from the management of the General Hospital of Zone No. 3 for the review of patient records.

With a set schedule of 3 hours during the morning shift and 3 hours during the evening shift, the researcher requested clinical records from the hospital's archive of the study population and proceeded with reviewing and cross-referencing the necessary information for the purposes of this research. Data collection was carried out and recorded in a spreadsheet, based on the study variables mentioned earlier.

This study did not involve direct patient contact; however, it ensured confidentiality of the obtained data. Upon completion of data collection, statistical analysis of the sample was carried out.

Data Analysis:

Demographic characteristics were obtained from the clinical records reviewed through the PHEDS system and the physical clinical records. The SPSS v.20 statistical software package was used to process the data, where a descriptive analysis of the variables was performed. For inferential analysis, non-parametric statistics were used, and the Spearman correlation coefficient was employed as the test statistic to assess the association between the expected and observed frequencies, with a statistical significance level considered as $p<0.05$.

RESULTS

The study population consisted of patients aged 18 to 100 years, diagnosed with abdominal cancer and intestinal obstruction, from the General Hospital of Zone No. 3, IMSS, Aguascalientes, between January 2017 and January 2024. Based on the sample size calculation, 14 patients were included.

The study analyzed the distribution of participants by sex, age, cancer type, neutrophil-lymphocyte ratio, and the treatment provided (conservative or surgical). The results are presented as follows:

Table 1 and Figure show the gender distribution of the study population. A total of 14 participants were included, with 9 (64.3%) being male and 5 (35.7%) female. Patients were randomly selected for this study.

Table 1: Distribution of the study population by sex (fi: frequency)

Distribution by sex		
Sex	fi	(%)
Male	9	64.3
Female	5	35.7
Total	14	100

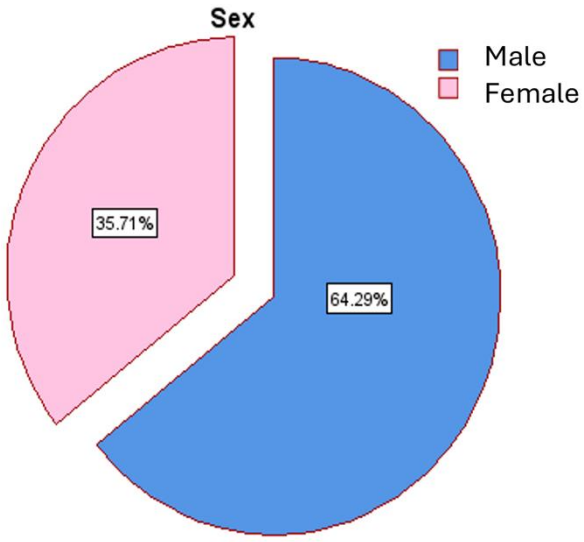

Figure 2: Representative graphic of the studied population sort by sex.

In Table 2 and Figure 3, the demographic analysis by age group of the patients is shown: 41-50 years (35.7%), 31-40 years (21.4%), 51-60 years (21.4%), 61-70 years (7.1%), 71-80 years (7.1%), and 18-30 years (7.1%). The mean age was 54.6 years, with a median of 55 years. The age range varied from 22 to 84 years, with a standard deviation of 16.10.

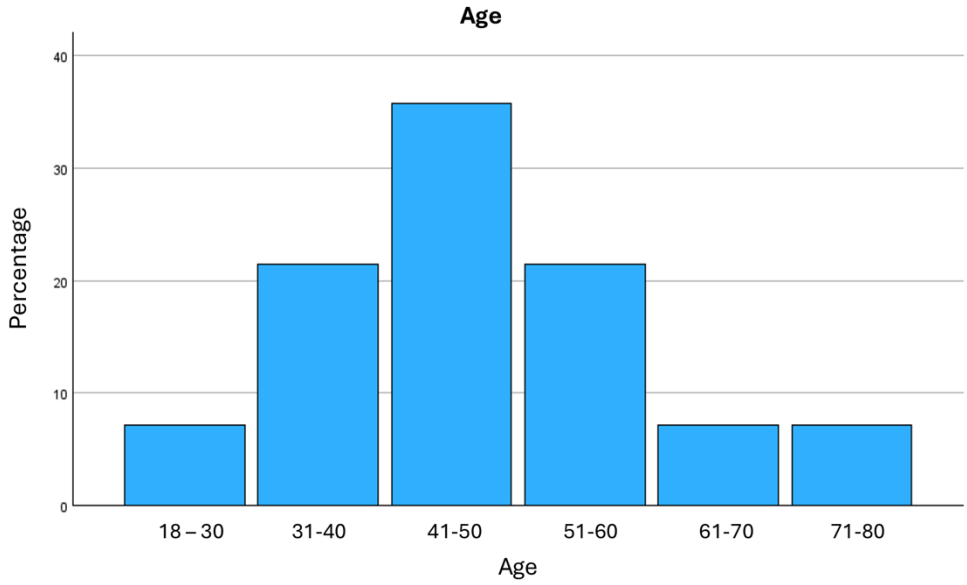

Figure 3: Representation of the percentage of the study population by age.

Table 2: Age distribution of patients. (fi: frequency).

Age distribution of patients		
Age rank	fi	(%)
41 to 50	5	35.7
31 to 40	3	21.4
51 to 60	3	21.4
18 to 30	1	7.1
61 to 70	1	7.1
71 to 80	1	7.1
Total	14	100

Distribution of patients by cancer type

According to Table 3 and Figure 4, the results show that out of the 14 patients, 11 were diagnosed with intestinal cancer and 3 with gynecological cancer.

Table 3: Type of cancer distribution of patients. (fi: frequency).

Type of cancer distribution		
Type of cancer	fi	(%)
Intestinal	11	78.6
Gynecolgic	3	21.4
Total	14	100

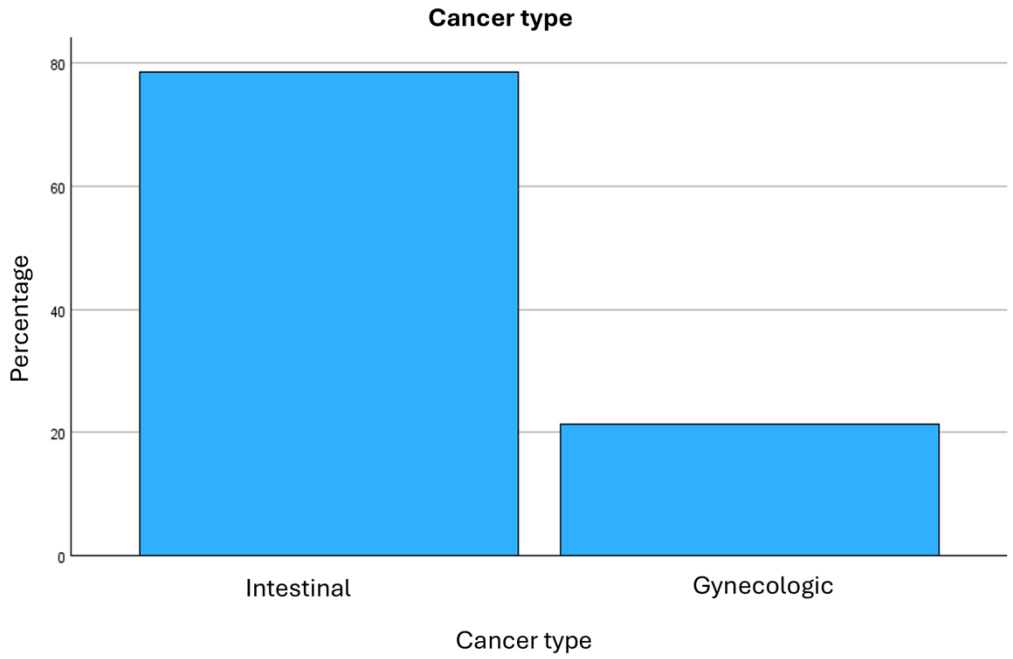

Figure 4: Representation of the percentage of cancer types found in the studied population.

Distribution of patients by cancer type and neutrophil-lymphocyte ratio:

The results shown in Table 4 and Figure 5 describe that out of the 14 patients, 11 were diagnosed with intestinal cancer, of which 35.7% had a neutrophil-lymphocyte ratio >4, and 42.9% had a ratio ≤3.9.

Out of the 14 patients, 3 were diagnosed with gynecological cancer, and only 21.4% had a neutrophil-lymphocyte ratio greater than 4.

No patients with genitourinary cancer diagnosis were included in the sample.

Table 4: Distribution of patients according to the type of cancer diagnosed and correlation with the neutrophil-lymphocyte ratio result.

Distribution of patients by cancer type and neutrophil-lymphocyte ratio

Cancer type	Neutrophil-lymphocyte ratio		Total (%)
	>= 4 (%)	<= 3.9 (%)	
Intestinal	5 (35.7)	6 (42.9)	11 (78.6)
Gynecologic	3 (21.4)	0 (0)	3 (21.4)
Total	8 (57.1)	6 (42.9)	14 (100)

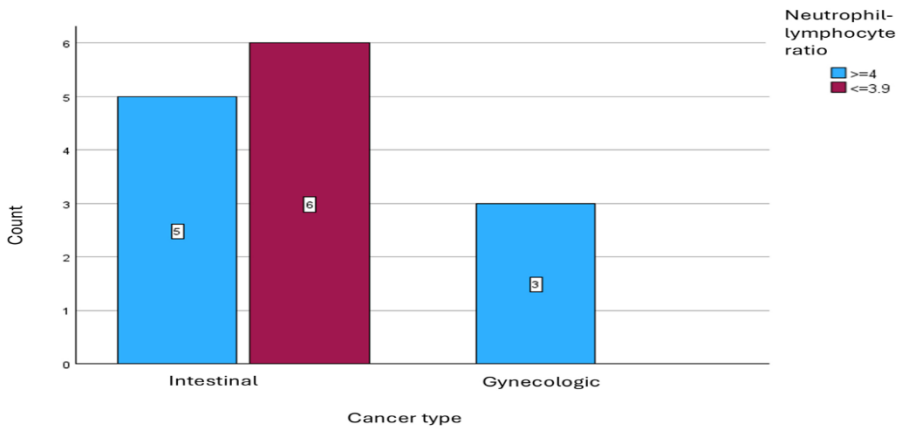

Figure 5: Representation of the patient count according to the type of cancer diagnosed and correlation with the neutrophil-lymphocyte ratio result.

Distribution of patients according to the treatment provided and the neutrophil-lymphocyte ratio:

Among the patients who received conservative management (6 patients), only 1 patient had a ratio greater than 4. In contrast, of the 8 patients (57.1%) who received surgical management, 7 had a neutrophil-lymphocyte ratio >4, and only 1 had a ratio ≤ 3.9. (Table 5).

Table 5: Distribution of patients according to the treatment provided and the neutrophil-lymphocyte ratio

Distribution of patients according to the treatment provided and the neutrophil-lymphocyte ratio

Treatment provided	Neutrophil-lymphocyte ratio		Total (%)
	>= 4 (%)	<= 3.9 (%)	
Conservador	1 (7.1)	5 (35.7)	6 (42.9)
Quirúrgico	7 (50)	1 (7.1)	8 (57.1)
Total	8 (57.1)	6 (42.9)	14 (100)

Distribution of the sample according to cancer type, neutrophil-lymphocyte ratio, and the established treatment:

According to Table 6, of the 14 patients, 6 (42.9%) were managed with conservative treatment, and 8 (57.1%) received surgical management.

Among the 14 patients, 8 (57.1%) had a neutrophil-lymphocyte ratio greater than 4, while 6 (42.9%) had a ratio of 3.9 or less.

As shown in Figure 6, of the patients diagnosed with intestinal cancer (5 patients, 62.5%) and a neutrophil-lymphocyte ratio greater than 4, none were managed conservatively, and all 5 received surgical treatment. Of those diagnosed with gynecological cancer (3 patients, 37.5%) and a neutrophil-lymphocyte ratio greater than 4, 1 was managed conservatively, and 2 received surgical treatment.

As shown in Figure 7, of the patients diagnosed with intestinal cancer (6 patients, 100%) and a neutrophil-lymphocyte ratio ≤ 3.9, 5 (83.3%) were managed conservatively, and only 1 patient received surgical treatment.

No patients with a diagnosis of gynecological cancer and a neutrophil-lymphocyte ratio ≤ 3.9 were included in the study.

Table 6: Distribution of the sample according to cancer type, neutrophil-lymphocyte ratio, and the established treatment

Distribution of the sample according to cancer type, neutrophil-lymphocyte ratio, and the established treatment

Neutrophil-lymphocyte ratio	Cancer type (%)	Established treatment		Total (%)
		Conservative (%)	Surgical (%)	
>= 4	Intestinal	0 (0)	5 (62.5)	5 (62.5)
	Gynecological	1 (12.5)	2 (25)	3 (37.5)
	Total	1 (12.5)	7 (87.5)	8 (100)
<= 3.9	Intestinal	5 (83.3)	1 (17.7)	6 (100)
	Gynecological	0 (0)	0 (0)	0 (0)
	Total	5 (83.3)	1 (17.7)	6 (100)
Total	Intestinal	5 (35.7)	6 (42.9)	11 (78.6)
	Gynecological	1 (7.1)	2 (14.3)	3 (21.4)
	Total	6 (42.9)	8 (57.1)	14 (100)

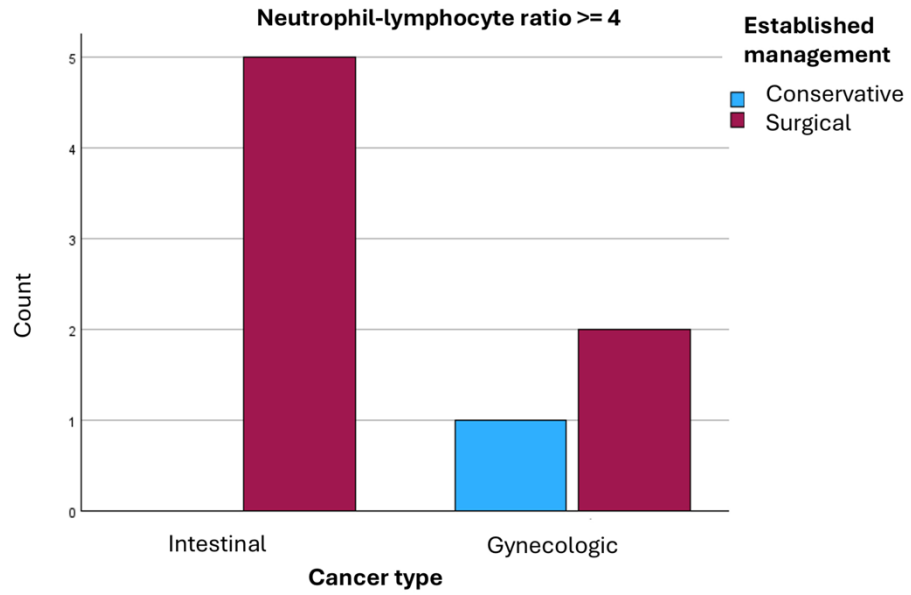

Figure 6: Representation of the patient count according to the diagnosed cancer type, correlation with the type of treatment administered, and a neutrophil-lymphocyte ratio greater than or equal to 4.

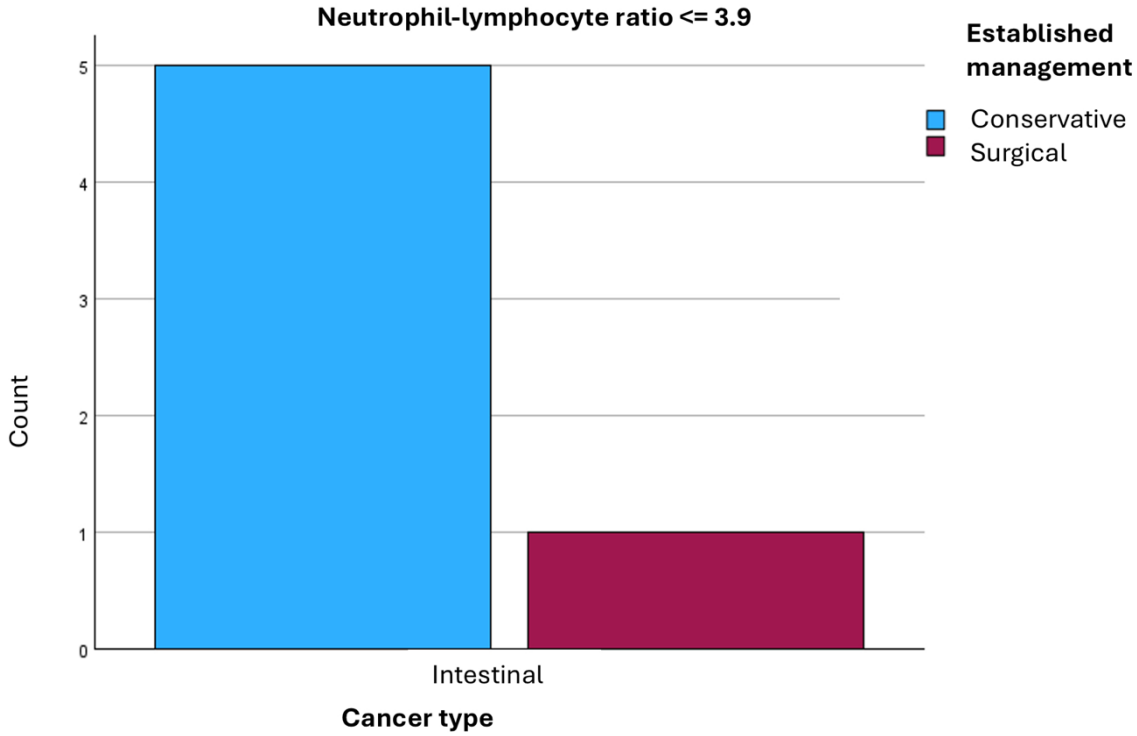

Figure 7: Representation of the patient count according to the diagnosed cancer type, correlation with the type of treatment administered, and a neutrophil-lymphocyte ratio less than or equal to 3.9. .

Inferential Analysis

Due to the nature of the variables and the sample size, the Shapiro-Wilk normality test was used, resulting in a non-normal distribution of our variables ($p = 0.008$) and (<0.001) (Table 7).

Table 7: Shapiro-Wilk Normality Test (df: degrees of freedom) (p: two-tailed significance).

Shapiro-Wilk normality test			
	Statistic	df	P
Neutrophyl-lymphocyte ratio	0.815	14	0.008
Established management	0.639	14	<0.001

Correlation of Variables

After applying the Spearman correlation coefficient, it was shown that there is a significant relationship between the neutrophil-lymphocyte index and the type of treatment chosen. This relationship is direct, meaning that a higher neutrophil-lymphocyte index increases the likelihood of surgical management. Additionally, the relationship is strong and highly correlated (rho = 0.708), as shown in Table 8.

Table 8: Spearman Correlation Coefficient (rho(r): correlation) (p: two-tailed significance) (n: sample size)

Spearman Correlation Coefficient			
	rho (r)	p	n
Neutrophil-lymphocyte index and the type of treatment chosen	0.708	0.005	14

DISCUSSION

Intestinal obstruction due to abdominal cancer is a common clinical issue, with an overall incidence ranging from 3% to 15%. Diagnosis is primarily based on the history of established abdominal oncological disease, as well as radiological and laboratory tests. According to current literature, there is no standard regarding the criteria for predicting failure of conservative management and the appropriate timing for surgical intervention.

Based on the previous discussion and after analyzing the topic, the aim of this study was to determine whether there is an association between the neutrophil-to-lymphocyte ratio (NLR) and failure of conservative medical treatment in patients diagnosed with intestinal obstruction due to abdominal cancer.

In comparison to the study by Kaiying Yu conducted in 2020, which aimed to explore factors associated with the prognosis of both conservative and surgical treatments and included a total of 64 patients (27 males and 37 females), our study had a higher prevalence of males (9) compared to females (5). Regarding the location of the primary tumor, colorectal cancer had the highest incidence, with 23 patients, which aligns with our findings, where a total of 8 (n=14) patients had colon cancer.

In the descriptive study by Cato, L. D. in 2020, which aimed to characterize patients with malignant small bowel obstruction (mSBO) by analyzing data on management and treatment pathways in a total of 94 patients, it was reported that there was a statistically significant difference in survival between patients who received surgical treatment and those who did not. Furthermore, it was found that most of the primary cancers were colorectal, followed by gynecological cancers (n = 46, 17, and 7, respectively), which is consistent with our results.

Additionally, it was described that patients with primary colorectal cancer were more likely to receive surgical treatment (31, 62%) than not (14, 32%), whereas patients with primary gynecological cancer were more likely to be treated conservatively (15, 34%) than surgically (3, 6%), which aligns with our findings. In our study, 5 out of 8 patients (n=14) diagnosed with colorectal cancer received surgical treatment. However, in the case of gynecological cancer, there was no significant difference in the treatment approach, as 1 (33%) of the 3 patients diagnosed with this cancer received conservative management, and 2 (66%) received surgical treatment.

Based on the results obtained by Jon C. Henry (2012), who conducted a retrospective study in a group of patients with malignant intestinal obstruction to identify predictive factors for short- and long-term outcomes, which included a total of 523 patients, it was described that, demographically, males predominated in the surgical group (48.8%). However, in our study, there was no significant difference by sex, with 4 male patients and 4 female patients in the surgical group.

Although we did not find any studies in our literature review that analyzed the neutrophil-to-lymphocyte ratio as a predictor of failure of conservative treatment, other values have been associated with the severity of intestinal obstruction, such as leukocyte levels (Coco D, 2022), and serum albumin levels, which were significantly higher in surgical patients (Jon C. Henry JC, 2012). However, an elevated neutrophil-to-lymphocyte ratio has been described as a predictor of intestinal ischemia in patients with intestinal obstruction and, consequently, imminent failure of conservative treatment. This makes it important to consider in the context of oncological surgical patients. In our study, it was found that among the 8 patients with an NLR >4, surgical resolution predominated (7 patients received surgical management, and 1 received conservative treatment). In

contrast, among the 6 patients with an NLR ≤3.9, only 1 patient required surgical management, while 5 were treated conservatively. Furthermore, our inferential statistics demonstrated a significant correlation between the neutrophil-to-lymphocyte ratio and the type of treatment chosen.

Regarding the type of cancer and the neutrophil-to-lymphocyte ratio, it was demonstrated that regardless of the value of the NLR, intestinal cancer predominated in both groups.

CONCLUSION

This study has provided a deeper understanding of the relationship between the neutrophil-to-lymphocyte ratio (NLR) and failure of conservative treatment in patients diagnosed with intestinal obstruction due to abdominal cancer. Through the analysis of our results, we have observed that this ratio could be a useful predictive factor in determining the management approach for patients with this condition, providing valuable insight given the lack of consensus in the literature regarding therapeutic decision-making criteria.

One of the most important findings of our study was the significant correlation between an elevated NLR (>4) and a higher likelihood of requiring surgical treatment. This suggests that the NLR could have predictive value in the therapeutic resolution of patients with intestinal obstruction due to cancer. According to our results, patients with an NLR >4 were more likely to undergo surgery, while those with an NLR ≤ 3.9 tended to receive conservative treatment.

In conclusion, the results of this study support the idea that the neutrophil-to-lymphocyte ratio can be considered a useful predictive factor for determining the most appropriate treatment in patients with malignant intestinal obstruction. However, further research with larger sample sizes is recommended to strengthen this hypothesis and, eventually, establish this marker as part of the diagnostic criteria for decision-making in the management of intestinal obstruction due to abdominal cancer.

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