ORIGINAL ARTICLE

Does a selective surgical approach to malignant bowel obstruction help in palliative care patients?

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ABSTRACT

BACKGROUND: Malignant bowel obstruction (MBO) is a condition secondary to intra-abdominal metastatic spread of advanced-stage tumors. There is no consensus for the treatment approach of MBO. This study aims to present the results of medical treatment and palliative surgery in patients diagnosed with MBO.

METHODS: The patients who were treated for advanced-stage tumors between 2010 and 2017 and for whom consultation was requested from the surgical clinic for MBO symptoms were identified. A selective approach together with palliative care for the indication of surgery was instituted. The patients with surgical treatment and medical treatment were compared concerning survival, oral food intake and symptom relief.

RESULTS: Seventy-six patients (30 female, 46 male) aged 60.5±12.8 years (range: 27–88) were included in this study. Forty-eight of the patients (64.9%) underwent surgical treatment, while 28 (35.1%) had medical treatment. Although the patients with surgery had longer duration of stay in the hospital (median 16 days vs. 4 days) ($p<0.001$) and higher complication rates (27.1% vs. 3.5%) compared to medically treated patients; the restoring oral food intake was better (97.9% vs. 78.6%) ($p=0.005$) and the survival was longer (105 days vs. 43 days).

CONCLUSION: This study revealed that surgical treatment resulted in better outcomes for life quality parameters in highly selected patients with malignant bowel obstruction evaluated by multidisciplinary team, including palliative care.

Keywords: Malignant bowel obstruction; palliative surgery; tumor; Ileus.

INTRODUCTION

Malignant bowel obstruction (MBO) is a devastating condition at the end of life threatening the patients with advanced-stage of tumors originated from or metastatic to abdominal cavity. The most common etiological causes are ovarian and colon cancers,[1,2] while the incidence of extra-abdominal tumors due to peritoneal metastasis is rather low.[3,4] Patients have a functional or mechanical obstruction in the GIS that interferes with physiological passage and digestion. These patients experience many adverse events, such as nausea, vomiting, distention and lack of oral food intake with an average life expectancy of four months.[5]

Although it is uncommon, the management of these patients is quite challenging. Usually, conservative methods like medication (i.e., antiemetics, somatostatin and steroids) and stenting prevails the initial treatment; they often fail in a short term. Palliative surgical treatment is another important option for maintaining GIS integrity. Although it is a treatment of choice in select patients, which may provide prompt symptom control and improvement of quality of life, the complication rate is high.[6] Unlike the patients receiving conservative measurements that have a shorter life expectancy, diminished quality of life due to rapid progression of symptoms, compromisation of oral food intake and rapid deterioration of general health condition, selected patients who were appropriate to

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undergo palliative surgical treatment have better outcomes for these parameters. In general, six-month life expectancy is approximately 50% in patients who undergo surgical treatment, but this rate is only approximately 8% in patients who undergo medical treatment.[7,8] Therefore, a good evaluation of these patients who have a short life expectancy and careful use of the surgical option could help physicians, patients and their relatives during the process.

Despite modern diagnostic and therapeutic approaches, the long-term prognosis of MBO remains poor. Many departments dealing with such patients make their decisions depending on their available resources, experiences and patient expectations. Although the burden to patient/family, physicians and healthcare system and the discouraging results with treatments overall necessitates more studies, it is very difficult to establish a clear protocol for the management of MBO due to the inherent features of the disease like scarcity of patients, progressive nature of the disease and so on.

The present study aims to evaluate the treatment approaches in patients with MBO in the light of the literature and to compare the surgical and medical treatment options for various patient outcomes.

MATERIALS AND METHODS

After approval of the institutional review board (IRB) of Tokat Gaziosmanpaşa University, Faculty of Medicine (IRB number: 17-KAEK-191), the patients who were admitted to general surgery or surgical oncology department with malignant bowel obstruction during 2010 and 2017 were retrieved from an electronic data file with ICD-10 code of K56. We also reviewed the consultation requests with the keywords of "obstruction, ileus". from different clinical (e.g., internal medicine, oncology, palliative care, radiation oncology, emergency and obstetrics and gynecology) departments to the general surgery department and retrieved the patients with malignant bowel obstruction. Patients, consultation notes of general surgery clinic, consultations requests from other clinics were reviewed and re-examined and doubly-checked by scanning "obstruction and ileus" words in hospital database by one of the authors (AA). Patients who were operated for curative purposes with MBO diagnosis but whose records were not available in the follow-up period and those patients referred to our clinic but did not have obstruction symptoms were excluded from this study. Our university hospital is a tertiary referral center located in Northeastern Anatolia, serving around 600.000 inhabitants, having the only in the vicinity and fully-functional oncology facility, including surgical, medical, radiation oncology and palliative care units. The patients with obstruction from the emergency department, outpatient surgical oncology department or from consultations were admitted to the ward. The routine first-line workout for blood chemistry and abdominal plain radiography was studied. Medical treatment before surgery for MBO is based on NPO, parenteral hydration, nasogastric aspiration, and the use of octreotide or analgesics and antiemetic drugs. The aims of these measures are to control the symptoms, reestablish the hydroelectrolytic balance, favor spontaneous resolution, and gain the time necessary to establish a diagnostic process to facilitate individualized surgical decisions. With these measures, adequate control of the symptoms is achieved in 80% of cases if NPO and nasogastric aspiration are maintained. It is reasonable to assume that nasogastric aspiration at the onset of the obstruction may favor spontaneous resolution since it drastically reduces the endoluminal gastric pressure. However, long-term nasogastric aspiration is uncomfortable for the patient and has intense secondary effects (e.g., esophagitis, gastroesophageal reflux, nasal erosions and bronchoaspiration). Once the patient is stabilized, an abdominal computerized tomography and endoscopy were obtained. The value of operative intervention for bowel obstruction in cancer patients has even been claimed to be limited to the presence of a benign obstruction cause, but not to carcinomatosis. Unfortunately, complete MBOs do not resolve after exclusively nonoperative treatment, and if the ability to take solid food is considered desirable, an operation seems to remain the only possible therapeutic option. The decision was based mainly on the patients' general condition, including nutritional status, comorbidities, performance status and CT findings. Some CT findings have helped to exclude the patients from surgery since they would not benefit much. The main finding in CT was the diffuse involvement of small intestinal mesenteric root causing condensation of the mesentery and gathered all intestines in the midline rendering them hard to move which was called Bluto. The diffuse involvement of intestine and mesentery with peritonitis carcinomatosa and massive ascites was the relative contraindications for the surgery. After the imaging, patients were consulted for a thorough palliative care evaluation. It consisted of a holistic evaluation of the patient and the discussion with the patient and family, which included a realistic description of the situation and revealed the expectations, goals and treatment preferences of the patients and family. After a discussion in the surgical grand round, a treatment preference was chosen for the patient.

MBO Criteria

The diagnosis of MBO was made based on both the signs of symptoms of obstruction (intestinal obstruction findings, the development of obstruction through the distal part of the pylorus) and the presence of malignancy (peritoneal metastasis of primary intra-abdominal or extra-abdominal cancers with peritoneal involvement and the absence of reasonable possibilities for a cure).

Demographic and Clinical Variables

The patients were grouped into two: The first group included the patients receiving medical treatment or care of the obstruction; the second group included the patients who

underwent the surgical treatment for the purpose of obstruction. Age, the gender of the patients, primary diagnosis, clinical symptoms, CT findings (presence of ascites, peritoneal involvement, visceral organ metastasis, obstruction level), presence of surgery, received adjuvant chemotherapy or radiotherapy, food toleration at admission, post-treatment removal of a nasogastric tube (NGT), length of hospitalization, development of a complication, duration of time through the discharge and length of survival of the patients were retrieved from electronic files of the patients and recorded and compared between these two groups.

Statistical Analyses

Descriptive analyses were performed to provide information on the general characteristics of the study population. Quantitative data were expressed as median and interquartile range. Mann-Whitney U test and Kruskal Wallis ANOVA were used to compare the continuous non-normal variables between the groups. Independent samples t-test or one-way analysis of variance was used to compare the normally distributed variables between the groups. Kaplan Meier method was used for determining survival probabilities and survival curves. Spearman correlation coefficient was used for bivariate correlation of variables. A p-value <0.05 was considered significant. Statistical analyses were performed using SPSS 19 (IBM SPSS Statistics 19, SPSS Inc., an IBM Co., Somers, NY).

RESULTS

In this study, 107 patients were included at the outset. A detailed analysis revealed that thirty-one patients were either

Table 1. Distribution of qualitative variables

	n	%		n	%
Gender			NGT inserted when first arrived		
Female	30	39.5	Yes	45	59.2
Male	46	60.5	No	31	40.8
Obstruction level			Removal of NGT after treatment		
Small intestine	44	57.9	Yes	69	90.8
Large intestine	23	30.3	No	7	9.2
Gastric-outlet	9	11.8	Treatment		
Ascites in computed tomography			Surgery	48	63.2
Yes	46	60.5	Medical	28	36.8
No	30	39.5	Oral food intake after treatment		
Visceral organ involvement in computed tomography			Solid food	58	76.3
			Liquid food	10	13.2
Yes	49	64.5	No oral intake	8	10.5
No	27	35.5	Discharge status		
Peritoneal involvement in computed tomography			Exitus	16	20.0
			Discharge	60	80.0
Yes	36	47.4	Readmission due to the same complaint		
No	40	52.6	Yes	33	43.4
Primary tumor operated			No	43	56.6
Yes	43	56.6	Relief of symptoms after treatment		
No	33	43.4	Yes	68	89.5
Receiving adjuvant chemotherapy			No	8	10.5
Yes	53	69.7	Etiological cause		
No	23	30.3	Colo-rectal Cancer	34	44.7
Receiving chemotherapy in the last six weeks			Gastric cancer	26	34.2
Yes	18	23.7	Small intestine cancer	4	5.2
No	58	76.3	Pancreas cancer	4	5.2
Food tolerance at diagnosis			Ovarian cancer	3	3.9
Yes	22	28.9	Breast cancer	3	3.9
No	54	71.1	Renal cell cancer	2	2.6

did not meet the MBO criteria or they lacked the necessary information in the files. Thus, this study included a final of 76 patients with MBO who were followed-up in our hospital. The mean age of the patients was 60.5±12.8 years (ranged 27–88 years) with predominantly male (46 male (60.5%)). Table 1 summarizes the demographic, clinical and treatment characteristics of this study. The mean age of the patients who underwent surgical treatment was 59.58±13.68 years, and the mean age of the patients who were treated with medical treatment was 62.21±10.8 years. Forty-eight patients (64.9%) underwent surgical treatment, while 28 (35.1%) patients had medical treatment. A comparison of patients treated with surgery and those treated with medical treatment is summarized in Table 2.

In patients who underwent surgical treatment, the duration of hospital stay was longer (median 16 days [10.0–24.5 days] vs. four days [2.0–10.5 days], p<0.001) and the complication rate was higher (27.1% vs. 3.5%; p=0.003) compared to the medically treated patients. However, these patients had better outcomes, such as higher percentage of postoperative symptoms relief (95.8% vs. 78.6%; p=0.018), removal of NGT (97.9% vs. 78.6% ; p=0.005), restoring oral food intake (97.9% vs. 78.6%; p=0.005) and lower hospital readmissions, due to

Table 2. Quantitative variables in patient groups who underwent surgery and who had medical treatment (Mann-Whitney U test and Chi-square test were used)

Variables	Applied treatment		p
	Medical	Surgery	
	Mean±SD or Median [IQR] or n (%)	Mean±SD or Median [IQR] or n (%)	
Number (n)	28 (35.1)	48 (64.9)	
Age (years)	62.21±10.8	59.58±13.68	0.387
Gender			
Female	12 (42.9)	18 (37.5)	0.645
Male	16 (57.1)	30 (62.5)	
Obstruction level			
Gastric outlet	2 (7.1)	7 (14.6)	0.020
Small intestine	22 (78.6)	22 (45.8)	
Large intestine	4 (14.3)	19 (39.6)	
Ascites in CT	23 (82.1)	23 (47.9)	0.003
Peritoneal involvement in CT	20 (71.4)	16 (33.3)	0.001
Visceral organ involvement in CT	22 (78.6)	27 (56.3)	0.049
Primary tumor operated	19 (67.9)	24 (50.0)	0.130
Receiving adjuvant chemotherapy	21 (75.0)	32 (66.7)	0.446
Receiving chemotherapy in the last six weeks	10 (35.7)	8 (16.7)	0.060
No food tolerance at diagnosis	14 (25.9)	40 (74.1)	0.002
Oral food intake after treatment			
Solid food intake	16 (57.1)	42 (87.5)	0.005
Liquid food intake	6 (21.4)	5 (10.4)	
No oral intake	6 (21.4)	1 (2.1)	
NGT inserted when first arrived	11 (39.3)	34 (70.8)	0.007
Removal of NGT after treatment	22 (78.6)	47 (97.9)	0.005
Relief of symptoms after treatment	22 (78.6)	46 (95.8)	0.018
Total length of hospital stay (days)	4 [2.0–10.5]	16 [10.0–24.5]	<0.001
Complication development	1 (3.5)	13 (27.1)	0.003
Discharge from hospital	21 (75)	39 (83.0)	0.403
Readmission due to the same complaint	17 (60.7)	16 (33.3)	0.020
Length of survival after treatment (days)	43 [27–182.5]	105 [38–360]	0.035

NGT: Nasogastric tube; CT: Computed tomography; SD: Standard deviation.

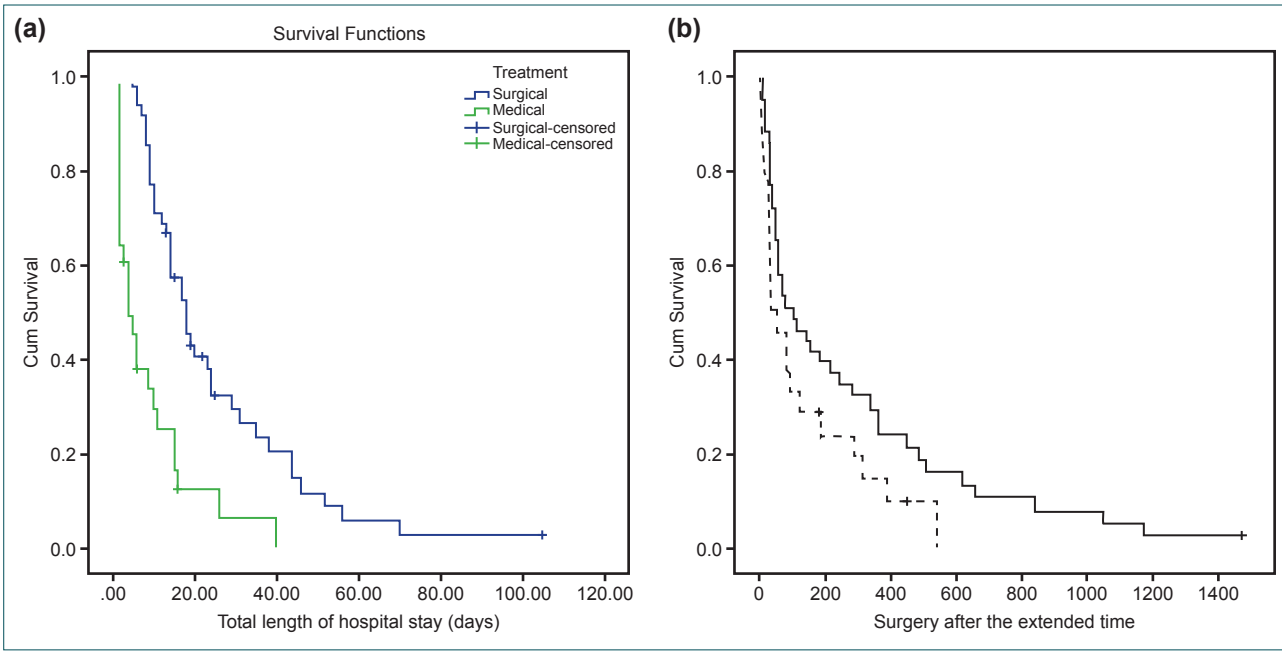


Figure 1. (a) Total duration of hospital stays of the patients who underwent surgery and who had medical treatment. **(b)** Length of survival in patients who underwent surgery and who had medical treatment.

the same complaints (33.3% vs. 60.7%; p=0.020), and longer survival after treatment (105 days [38–360 days] vs. 43 days [27–182.5 days]; p=0.035) (Table 2 and Fig. 1).

DISCUSSION

This retrospective study evaluated the effectiveness of the surgical intervention in highly selected MBO patients. Based on CT findings, patients' medical conditions and palliative care consultation both with patient and the family caregivers, they were triaged either to medical treatment or surgical intervention. Our study showed that the surgical intervention was better at controlling in the symptoms which negatively affected the quality of life, such as nausea, vomiting and distension. The palliative surgery has also been associated with removal of NGT and restoring better oral food intake. Additionally, the readmission rate due to similar complaints was lower and survival after surgery was longer in this patient group. However, the patients who underwent palliative surgery had a longer hospital stay and higher complication rates.

In MBO patients of advanced-stage cancer, multidimensional evaluation of the patients including the clinical findings, expected lifespan, expectations, hopes and realities should be promptly instituted through a multidisciplinary approach. Although the surgical treatment is a good option in benign intestinal obstruction cases, it may not be as satisfactory in advanced-stage cancer patients. Planning of the treatment by evaluating these patients with a multidisciplinary approach (e.g., clinical findings, CT images, presence of complete/incomplete obstruction, cachexia, comorbidity, multiple segment involvement, massive ascites and diffuse peritoneal involvement) increases the success of the treatment applied.[9]

MBO develops in 3–15% of the advanced-stage cancer patients, and the commonest two cancers are ovary (20-50%) and colon (10–29%).[10,11] During the follow-up periods of primary intraabdominal cancers, MBO develops in 25–40% of colon cancers, 16–29% of ovarian cancers, 6–19% of gastric cancers, 3–13% of pancreatic cancers, 3-10% of bladder cancers and 3–11% of endometrial cancers in decreasing orders.[10,12] MBO secondary to peritoneal metastasis of extra-abdominal tumors is relatively rare and most commonly seen in breast cancers (2-3%) and malignant melanomas (3%).[13,10] On the contrary, our study consisted of MBO cases mostly due to gastrointestinal system cancers, being ovarian cancer only about 4% (Table 1). The discrepancy could be due to the presence of a surgical oncology unit in our hospital, dealing mostly with gastrointestinal cancers and less gynecological cancers.

Although the average age in our patients was about the same as the earlier reports (61 vs. 60.5), the male patients dominated different from the literature.[14,10] A putative explanation for this discrepancy could lie in our distinctive composition of tumor origin. Our study group mainly composed of gastric cancers of which males were readily affected than women. The same distribution also affected the time between the diagnoses of primary cancer and MBO. While the mean time between the diagnosis of primary cancer and the development of MBO in the literature was 14 months, our patients experienced an earlier diagnosis as 9.1 months. We speculated that our patients had gastric cancers diagnosed at

advanced stages, and their poor prognosis played important role in the earlier presentation of the patients with MBO.

MBO constitutes more than 40% of the palliative consultations requested from the surgery department in advanced cancer patients.[9] Nausea, vomiting, distension and oral food intake disorder frequently seen in MBO have a negative effect on the life quality of advanced-stage cancer patients and individuals in their immediate vicinity. Unfortunately, there is still no standard treatment protocol for these patients. Each clinic has its approach depending on their own experiences. This is a challenging process for patients and physicians concerning treatment selection and follow-ups. Approximately 30% morbidity and 10% mortality was reported in palliative surgery performed due to nausea, vomiting, oral food intake disorder and cachexia complaints of these patients with a short life expectancy.[12,15] Therefore, the necessity of palliative surgery in these patients should be thoroughly evaluated, and the opinions and expectations of patients and their relatives should be taken into consideration when choosing medical or surgical treatment. The aim of the palliative treatment (medical or surgical treatment) in patients with MBO is to prevent vomiting, removal of NGT and, if possible, improve life quality by ensuring oral food intake. In these patients, the severity of complaints, such as nausea, vomiting, abdominal distension may vary depending upon complete or incomplete obstruction. Nausea can be seen in 100% of MBO cases, while vomiting is observed in 87–100%, colic abdominal pain in 72–80% and distension in 56–90%.[7,10] In MBO patients, who have medical treatment, complaints, such as nausea and vomiting spontaneously improved by 36% (31–42%). However, 60% of the patients experienced the recurrence of the symptoms over a short time and were readmitted to the hospitals.[14,16] In patients who underwent palliative surgery, these symptoms are less likely to recur and the patient's life quality is better.[17] We have shown that oral food intolerance decreased from 74.1% to 2.1% in patients who underwent palliative surgical treatment, while this rate decreased from 25.9% to 21.4% in inoperable MBO patients receiving medical treatment. In addition, it was observed that palliative surgery patients benefited more due to the relief of the symptoms, which affected the life quality adversely, such as nausea and vomiting, due to the removal of NGT and restored oral food intake. The patients who underwent palliative surgery had significantly less hospital readmission due to similar symptoms, and their oral food intake was better (Table 2).

The aim of palliative surgical treatment should be to relieve the complaints of patients, such as nausea, vomiting, distension and to restore oral food intake if possible. For this purpose, findings, such as the presence of diffuse peritoneal involvement, presence of malignant ascites, the involvement of multiple segments, palpable metastatic mass in the abdomen and cachexia, should be taken into consideration in the decision-making process. In the literature, different outcome rates have been reported in the palliative surgical treatment of MBO. In general, 30 days mortality rate is 9–40%, while the postoperative morbidity rate is 9–90%, and the rate of re-obstruction is 39–57%, while the average survival time varies from two to 12 months.[1,10,18] Age, advanced-stage of the disease, hypoalbuminemia due to the nutritional deficiency, cachexia, presence of electrolyte imbalance, presence of malignant ascites, previous radiotherapy application to pelvic region due to the primary tumor, and general deterioration in patient's conditions are among the poor prognostic factors in surgical treatment.[1,18,19] Therefore, it is important to support the patients with parenteral treatment, to use antiemetic drugs for nausea and vomiting, to correct electrolyte imbalance, to administer strong analgesics and to reduce intraluminal pressure using NGT, and to prepare the patient for surgical treatment before making a surgical treatment decision. The mean life expectancy in patients with inoperable MBO without surgical treatment is between four and five weeks. The life expectancy in patients undergoing palliative surgical treatment varies from three to eight months.[7,8,14] In patients who underwent palliative surgery, the median follow-up period by hospitalization was 16 days and rate of complication development was 27.1%. These rates were significantly higher than the group of patients who had medical treatment. On the other hand, patients who received palliative surgery had low recurrence rates and longer survival after treatment (Table 2). Complications and longer hospitalizations are expected in the palliative surgery group. The positive outcomes, such as decreases in nausea, vomiting, removal of NGT, and repeated hospitalizations in patients during postoperative term, were observed.

The obstruction in MBO can be complete, incomplete or may involve multiple segments. In the radiological evaluation of the inoperable patients with MBO, multiple abdominal segments are involved in more than 80%, whereas diffuse peritoneal carcinomatosis is observed in the abdomen of more than 65% of the cases.[10] Before evaluating palliative surgery in our clinic, we carefully evaluate the patient's clinical and functional status and the data from imaging modalities, such as abdominal CT. In fact, 82% ascites (p=0.003), 71.4% peritoneal involvement (p=0.001) and 78.6% visceral organ involvement (p=0.049), were observed when comparing the abdominal CT of the groups of medical treatment and palliative surgery. Peritoneal involvement in CT and the presence of malignant ascites and visceral organ metastasis played an important role in our decision-making for palliative surgery (Table 2). Therefore, the CT findings of gross mesenteric involvement may be regarded as one of the most important predictive factors of failure of surgery in MBO. We have observed that probably the single most predictive sign in CT was the cluster of the small intestine in the midline with massive shrinkage of mesenteric involvement by the peritoneal metastasis.

The decision of proper treatment for MBO required a shared decision-making with the patients and families. It also needed a multidisciplinary approach among different professions (e.g.,

oncologists, surgeons, gastroenterologists, palliative care specialists and intensivists). In the multidisciplinary approach, the physical condition of patients (e.g., clinical status, performance, comorbidity and life expectancy), as well as his/her emotional and psychological status and expectations were among the important determinants. The best example of this is stoma opening or resection anastomosis procedure after resection in patients with MBO. In the treatment process, it is important that the physician, patient and his/her family cooperate in the decision-making process concerning possible conscientious and legal issues.[17] The decision-making process required several rounds of discussion with palliative care specialists, surgeons, patients and families. After obtaining all the clinical and radiological evaluation, the most important aspect of decision-making should be carried with palliative care specialists to elaborate on the patients/families expectations and goals.

Our study includes some risks and limitations inherent in all retrospective studies. Lack of a standard protocol in treatment and follow-up of advanced-stage cancer patients and the need to consider the condition, comorbidity, life expectancy and CT findings of the patient when deciding on palliative surgery are some of them.

Conclusion

The aim of palliative treatment is to improve the life quality of patients through the relief of the symptoms. We have shown that better outcomes in the quality of life can be achieved in highly selected MBO patients who underwent palliative surgery compared to medical treatment. To achieve improved results, a multidisciplinary team effort with more emphasis on palliative care is important.

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ORİJİNAL ÇALIŞMA - *ÖZET*

Palyatif bakım hastalarında görülen malign bağırsak obstrüksiyonlarında selektif cerrahi yaklaşım fayda sağlıyor mu?

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AMAÇ: Malign bağırsak obstrüksiyonu (MBO) ileri evre tümörlerin karıniçi metastatik yayılımına sekonder oluşan bir durumdur. Tedavi yaklaşımında hekimler arasında tam bir konsensüs yoktur. Bu yazıda, MBO tanısı konulan hastalarda tıbbi tedavi ile palyatif cerrahi tedavi uygulanmış olan hastaların karşılaştırmalı sonuçlarını değerlendirerek hekimlerin dikkatine sunmayı amaçladık.

GEREÇ VE YÖNTEM: 2010–2017 yılları arasında kanser tanısı ile tedavi gören ve cerrahi kliniğinden MBO semptomları nedeniyle konsültasyon istenen hastalar belirlenerek kaydedildi. Küratif amaçla ameliyat yapılan hastalar ile kliniğe konsülte edilen hastalardan obstrüksiyon semptomları olmayan hastalar çalışmadan çıkarıldı. Çalışmaya dahil edilen hastalara uygulanmış olan tedaviye göre cerrahi veya tıbbi tedavi olarak ikiye ayrıldı. Cerrahi tedavi gören ve tıbbi tedavi gören hastalar sağ kalım, oral gıda alımı ve semptomların düzelmesi açısından karşılaştırıldı.

BULGULAR: Çalışmaya yaşları 60.5±12.8 (27–88) olan 76 (30 kadın, 46 erkek) hasta alındı. Kırk sekiz (%64.9) hastaya cerrahi tedavi uygulanırken 28 (%35.1) hastaya tıbbi tedavi uygulandı. Cerrahı tedavi uygulanan hastalar ile tıbbi tedavi uygulanan hastaların yapılan istatistiksel karşılaştırmasında cerrahi tedavi uygulanan hastaların hastanede yatış süresi uzun (median 16 güne karşılık 4 gün; p<0.001), komplikasyon oranı yüksek (%27.1'e karşı %3.5; p=0.003) iken cerrahi sonrası oral gıda alımında rahatlama (%97.9 karşı %78.6; p=0.005) ve tedavi sonrası yaşam süresi daha uzun (median 105 güne karşılık 43 gün; p=0.035) olduğu gözlendi.

TARTIŞMA: Çalışma, palyatif bakım da dahil olmak üzere multidisipliner ekip tarafından değerlendirilen malign bağırsak tıkanıklığı olan hastalarda cerrahi tedavinin yaşam kalitesi parametreleri için daha iyi sonuçlara yol açtığını ortaya koymuştur.

Anahtar sözcükler: İleus; malign bağırsak obstrüksiyonu; palyatif cerrahi; tümör.

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