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Investigation of Surgical Feeding Methods in Patients with Cancer: Evaluation of 65 Cases

Kanserli Hastalarda Cerrahi Beslenme Desteği Yöntemlerinin Değerlendirilmesi: 65 Olgunun İncelenmesi

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Abstract

Background: Cancer that progressively increasing prevalence of, causes malnutrition due to metabolic disorders and treatment side effects. Percutaneous endoscopic gastrostomy (PEG), gastrojejunostomy and jejunal feeding tube are common applied nutritional support methods. In this our study, we aimed to identify that diagnoses, stages, operation-related laboratory parameters of patients, and to emphasise significance of planning appropriate nutritional support in this patient group as soon as possible.

Material and Method: Descriptive analyses were used for the sociodemographic data of 65 cases who underwent surgical nutritional support in Gaziosmanpaşa University Research and Application Hospital between 01.03.2008 and 01.08.2019. Differences between groups were analysed using the independent sample T Test, and the data of continuous variables were given as mean ± standard deviation. p <0.05 accepted statistically meaningful.

Findings: Stomach and head- neck cancers were the most frequent diagnoses, respectively, among patients who supported via surgical feeding methods. While surgical procedures were performed in stage 3-4 in the gastric cancer patient group, procedures were applied in stage 1-2 in the patient group with head and neck cancer. The relationship between low albumin levels (3,3±0,65) and late mortality was statistically meaningful. (p<0,001)

Conclusions: Nutritional support methods are frequently performed in the growing cancer patient population. Considering the predictable risk factors in nutritional deficiency and treating in the early period contribute positively to survival.

Keywords: Cancer, surgical feeding methods, albumin

Öz

Amaç: Prevalansını giderek artıran kanser, metabolik bozukluklar ve tedavi yan etkileri nedeniyle yetersiz beslenmeye neden olmaktadır. Perkütan endoskopik gastrostomi (PEG), gastrojejunostomi ve jejunal beslenme tüpü yaygın olarak uygulanan beslenme destek yöntemleridir. Bu çalışmamızda hastaların tanılarını, evrelerini, ameliyatla ilgili laboratuvar parametrelerini tespit etmeyi ve bu hasta grubunda bir an önce uygun beslenme desteğini planlamanın önemini vurgulamayı amaçladık.

Gereç ve Yöntem: 01.03.2008-01.08.2019 tarihleri arasında Gaziosmanpaşa Üniversitesi Araştırma ve Uygulama Hastanesinde cerrahi beslenme desteği verilen 65 olgunun sosyodemografik verileri için tanımlayıcı analizler kullanıldı. Gruplar arasındaki farklılıklar bağımsız örneklem T Testi kullanılarak analiz edildi ve sürekli değişkenlerin verileri ortalama ± standart sapma olarak verildi. p <0.05 istatistiksel olarak anlamlı kabul edildi.

Bulgular: Cerrahi beslenme yöntemleriyle desteklenen hastalar arasında sırasıyla mide ve baş-boyun kanserleri en sık görülen tanılardı. Mide kanseri hasta grubunda cerrahi işlemler 3-4. aşamada yapılırken, baş boyun kanserli hasta grubunda ise evre 1-2'de işlemler uygulandı. Düşük albümin seviyeleri (3,3 ± 0,65) ile geç ölüm arasındaki ilişki istatistiksel olarak anlamlıydı. (p <0,001)

Sonuç: Büyüyen kanser hastası popülasyonunda beslenme destek yöntemleri sıklıkla uygulanmaktadır. Beslenme yetersizliğinde öngörülebilir risk faktörlerini dikkate almak ve erken dönemde tedavi etmek sağ kalıma olumlu katkı sağlar.

Anahtar Kelimeler: Kanser, cerrahi beslenme yöntemleri, albumin

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INTRODUCTION

Cancer is a disease with high morbidity and mortality, the prevalence of which continues to increase in developed and developing countries and is the second most common cause of death after cardiovascular diseases.[1,2] Patients are prone to malnutrition due to metabolic changes because of cancer, side effects of treatments such as surgery, chemotherapy and radiotherapy, and stress factors.[2] Weight loss is seen in pancreatic and stomach cancer in ratio 83-85%, 70% in head and neck cancers and 54-60% in lung and prostate cancers. Histopathological structure and stage of tumors can be affect malnutrition levels.[3] It has been found that approximately 50% of patients with head and neck cancer experience oral intake disorders after tumor surgery.[2] Radiotherapy applied to the thorax, abdomen and pelvic region causes malnutrition in 90% of the patients, while chemotherapy contributes to weight loss due to nausea, vomiting, changes in the perception of smell and taste, diarrhea and fatigue.[3] Death prevalence is higher especially in the elderly having body mass index below 18.[4]

Enteral or parenteral nutritional support should be provide to patients who insufficient feed orally.[4] Enteral nutrition method has superiority to parenteral support in terms of providing the continuity of the function of the gastrointestinal system, lower risk of infection, lower risk of bacterial translocation, more cost-effective and shortening the duration of hospital stay.[4-6] Enteral nutrition can be provided by methods such as nasogastric tube, nasojejunal tube, cervical esophagostomy, open laparoscopic gastrostomy and percutaneous endoscopic gastrostomy and jejunostomy.[5] Nasogastric tube procedure should be considered in patients whose nutritional support need is expected to last less than 1 month, and gastrostomy should be considered in patients who are expected to last longer than 1 month.[6,7]

MATERIAL AND METHOD

Study Population

Surgical feeding techniques applied to patients with malnutrition who were followed up with oncological diagnosis between 01.03.2008 and 01.08.2019 at Gaziosmanpaşa University Research and Application Hospital were retrospectively analysed. 71 patients were identified, 6 patients were excluded from the study because of with missing medical data, and 65 cases were included. Age, gender, diagnosis of primary malignancy, stage, type of surgical support, mean survival after the procedure, early and late mortality, white blood cell (WBC), hemoglobin, thrombocyte, C-reactive protein, albumin parameters before operation and 30th day after the procedure values were examined.

Ethics committee approval with 20- KAEK-254 number and 01.10.2020 date was getted from Tokat Gaziosmanpaşa University Ethic Committee for our this study.

Statically Analyses

Data of categorical variables in statistical analysis were n (%); data for continuous variables were given as mean ± standard deviation. Quantitative differences between groups were analysed with the independent sample T test, and data belonging to continuous variables were given as mean ± standard deviation. SPSS 20.0 statistical package program was used for statistical analysis of the data. $p < 0.05$ was accepted statistically meaningful.

RESULTS

65 patients were included in the study. There were 49 (75.4%) were male and 16 (24.6%) were female. The mean age was 64.89 (31-93). Twenty-five (38.5%) of the cancer patients who were performed surgical feeding methods were diagnosed with stomach cancer, 20 (30.7%) head and neck cancer, and 8 (12.3%) esophageal cancer. (**Table 1**)

Table 1. Distribution of cancer patients undergoing surgical feeding methods

Diagnosis	Number of Patients	
	n	%
Stomach Cancer	25	38.5
Head-Neck Cancer	20	30.7
Esophageal Cancer	8	12.3
Others	12	18.5
Total	65	100

In terms of the method of surgical nutritional support, it was found that 35 (53.8%) of the patients had percutaneous endoscopic gastrostomy and 30 (46.2%) had gastrojejunostomy-jejunal feeding tube. No case died during the procedure.

Thinking of stage at which the patients needed surgical nutritional support, it was seen that 28 of them (45.9%) were in stage 4, 14 (23.0%) were in stage 3, 10 (16.4%) were in stage 2 and 9 (%14.8) were in stage 1.

Thinking in terms of early (within 30 days after the procedure) and late (after the 30th day of the procedure) mortality, it was determined that 16 (24.6%) died in the early period and 27 (41.5%) in the late period. Average survive duration after the procedure is 195.9 days (1-1593). Due to the early application of surgical nutritional support to patients diagnosed with head and neck malignant neoplasms, it was seen that the survive duration in this patient group was longer.

Regarding white blood cell (WBC), hemoglobin, platelet, albumin and c-reactive protein values and late mortality (> 30 days after the procedure), the being of pre-procedure value of albumin in 3.3±0.65 was meaningful statistically, but there was no relationship between the other parameters and mortality. ($p<0.001$)

DISCUSSION

In patients in need of nutritional support, enteral nutrition according to parenteral nutrition; has advantages such as being easier to apply, being more economical, preventing mucosal atrophy, protecting intestinal flora, and reducing bacterial translocation.[8] Enteral nutrition is performed directly with a tube, percutaneous interventions or surgically. The enteral feeding method is chosen according to the underlying pathology, tube feeding time, gastrointestinal system anatomy, gastric and intestinal motility and function. The level at which enteral nutrition is applied should be the highest anatomical region where the patient can tolerate feeding. PEG is a frequently preferred feeding technique applied to patients who cannot be fed orally for any reason, who have normal gastrointestinal functions and who need enteral nutrition for more than 4 weeks.[9] In cases where there is a risk of aspiration, jejunal feeding tube is used instead of PEG.[10] In this our study, we showed that stomach and head - neck cancers were the most frequent diagnoses among patients who supported via surgical feeding methods, respectively. While surgical procedures were performed in stage 3-4 in the gastric cancer patient group, procedures were applied in stage 1-2 in the patient group with head and neck cancer. The relationship between low albumin levels (3.3±0.65) and late mortality was statistically meaningful.

While cerebrovascular diseases are in the first place and malignancies are in second place among the indications for using surgical nutrition techniques in our country, prolonged ventilation for various reasons comes in second in the study of Özgüç et al.[4,11] Özgüç et al.[11] showed that patients with head and neck cancer were the most common oncological patient group who received surgical nutritional support. In our study, patients with stomach cancer were in the first place with a rate of 38.5%, and patients with a diagnosis of head and neck cancers were in second place with a rate of 30.7%. The difference can be explained by the fact that the number of patients with gastrointestinal system malignancy in our study was higher than the number of patients with a diagnosis of head and neck malignant neoplasm.

When the literature was examined, while the risk of mortality during the procedure of surgical nutritional support was 1%, any death was not reported due to the procedure in studies of Demiryılmaz et al.[4], Şit et al.[5], Tuncer et al.[12], Özgüç et al.[11] In our study, there was no death related to the procedure.

Considering the average life span of patients after the procedure, it is detected as 215 days in the study of Demiryılmaz et al.[4], and 51 days in the study of Tuncer et al.[12] In our study, it is found as 195,9 days. The reason of the fact that average life span was founded longer according to the study of Tuncer et al.[12] could be because of surgical support was applied at an early stage in the patient group with head and neck cancer. The second reason of this situation could be that the procedure was applied to other cancer type patients who were predicted long survival time.

The early mortality rate was in the range of 8-20% in foreign studies, while this rate was found to be between 10-26.8% in our country. The late mortality rate in our country is 15.7-67%.[6] Şit et al.[5] determined the early mortality rate as 5.3% and the late mortality rate as 10.6%. In the study of Tuncer et al.[12] the early mortality ratio was 14.3% and the late mortality ratio was 18.4%. In our study, consistent with the literature, early mortality was 24.6% and late mortality was 41.5%.

Unlike the literature, we found that pre-procedure albumin value in the range of 3.3±0.65 was associated with late mortality in our study. We think that albumin replacement before the procedure may contribute positively to mortality in patients with hypoalbuminemia. When the literature on surgical nutritional support is evaluated, we think that laboratory data are not studied sufficiently in these patient groups. Studies that include before surgical nutritional support more comprehensive laboratory parameters will be significant regarding the survival time of patients.

In the global world where cancer prevalence continues to increase, nutritional problems are a problem that needs to be solved. In our study, we emphasized the importance of starting appropriate nutritional support as early as possible, choosing the appropriate method specific to the patient, and the importance of albumin. However, more studies are needed regarding the significance of other laboratory parameters.

Limitations

The fact that the patients were selected from a single center and the surgical feeding method was applied to a relatively small number of patients caused limitations in the study.

ETHICAL DECLARATIONS

Ethics Committee Approval: : Ethics committee approval with 20- KAEK-254 number and 01.10.2020 date was getted from Tokat Gaziosmanpaşa University Ethic Committee for our this study.

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

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