UDC: 616.36-006-089.168.1:613.2
DOI: 10.52532/2663-4864-2023-3-69-47-52

NUTRITIONAL SUPPORT FOR CANCER PATIENTS IN THE EARLY POSTOPERATIVE PERIOD

SH.K. DAVANOV[1], *L.S. MUSINA*[1]

[1]«Karaganda Medical University» NCJSC, Karaganda, the Republic of Kazakhstan

ABSTRACT

Relevance: *In modern medicine, evaluating patients' nutritional status is a priority for many specialists. The incidence of malnutritional in cancer pathology increases annually by 65-85%. The nutritional status of patients is represented by a decrease in life expectancy, deterioration of immediate and long-term treatment results, a decrease in the tolerability of therapy, and a decrease in the quality of life. Early detection of nutritional insufficiency and evaluation of the patient's nutritional status makes it possible for early provision of nutritional therapy and has a positive effect before the operation, during and after the operating period, reduces postoperative complications, and reduces the duration of stay in the hospital. This article reflects on the features of evaluating the nutritional status and methods of correction of clinical nutrition.*

The study aimed to *analyze the effectiveness of cancer patients' nutrition in the early postoperative period and determine the optimal method of nutritional support.*

Methods: *We compared the clinical effectiveness of enteral and parenteral nutrition methods in the complex of postoperative therapeutic measures on the hepato-pancreatic-duodenal zone.*

Results: *On Days 10-12 after surgery, 12 out of 17 control group patients had normal nutritional status judging by their Subjective Global Assessment (SGA) and Nutritional Risk Index (NRI), and five had moderate malnutrition. After enteral nutrition was added (on Days 13-15), no malnutrition cases in this group were detected. The total blood protein in the subjects showed a significant difference between the average values of indicators in clinical groups for the entire study period ($p<0.05$). The average total blood protein by Day 8 after surgery was 62.5±10.0 g/L in the study group and 57.5±10.1 g/L in the control group. The change in the blood biochemical composition was due to the volume, duration, and nature of the surgical intervention.*

Conclusion: *When using nutritional therapy in cancer patients operated on for tumors of the hepato-pancreatic-duodenal zone in the early postoperative period, the enteral route of administration of nutrient mixtures is preferred, provided there is no pronounced intestinal paresis and purulent discharge from the stomach.*

Keywords: *malnutritional, nutritional support, cancer, cancer patients, enteral nutritional supplements, parenteral nutrition.*

Introduction: Treatment of hepato-pancreatic-duodenal zone tumors is a priority for modern clinical cancer. The growth of the hepato-pancreatic-duodenal zone tumors leads to cancer pathologies, and finding treatment methods is a priority task. Among the hepato-pancreatic-duodenal zone pathologies, those accompanied by a decrease in the permeability or closure of the central biliary tract, with the subsequent development of obstructive jaundice, can be recognized as the most severe. Malnutritional is one of the most important indicators of the onset of the tumor process. It is based on the following factors: loss of appetite, localization of the tumor, which makes it difficult to eat normally (depending on its localization in the oropharyngeal zone or gastrointestinal tract), tumor complications, antitumor therapy (dyspepsia, pain syndromes). The main changes in oncopathology are manifested by cancerous cachexia [1, 2].

More than 50% of patients in intensive care units have symptoms of malnutrition. Despite early preventive examinations and the proposed modern diagnostic measures, in most cases, patients continue to be hospitalized if various complications of tumors of the organs of the hepato-pancreatic-duodenal zone (obstructive jaundice, duodenal obstruction, liver and kidney failure, tumor invasion of hollow organs and bleeding of the gastrointestinal tract) develop. Eating disorders significantly affect the outcome and prognosis of the disease, dramatically increase the duration and cost of treatment, and contribute to an increase in the number of deaths and complications. Complications include a decrease in immunity, secondary infection of the body, slow wound healing, a decrease in the concentration of blood plasma proteins, changes in drug metabolism, and a decrease in the body's tolerability to surgical treatment [2, 3].

In evaluating these indicators, the priority task is to evaluate the state of nutrition and carry out nutritional therapy in the clinic at all stages of treatment in cancer patients.

The study aimed to analyze the effectiveness of cancer patients' nutrition in the early postoperative period and determine the optimal method of nutritional support.

Materials and methods: We reviewed the literature and an analysis of various medical studies on cancer patients' nutritional support methods in the early postoperative period.

The International Associations of Clinical Nutrition ASPEN (American Society for Parenteral and Enteral Nutrition)

and ESPEN (Europen Society for Parenteral and Enteral Nutrition) recommended screening methods to identify malnutrition, including patient questionnaires. These standard anthropometric and laboratory data allow for evaluating the nutritional status and the degree of impairment.

We evaluated the patient's clinical condition using the screening protocols Nutritional Risk Screening (NRS, 2002), Subjective Global Assessment (SGA), and Nutritional Risk Index (NRI) on Days 5, 10, and 15 before and after surgery.

We also evaluated some indicators of nutritional status in the cancer dispensary. These are body mass index (measured weight before surgery and after surgery on Days 5, 10, and 15), basal metabolic rate (Harris-Benedict Equation based on patient's anthropometric data, taking into account gender, age, weight, and total volume), laboratory indicators (hemoglobin in the blood, lymphocytes, total protein, serum albumin, serum transferrin, total and direct bilirubin, ALT and AST for evaluating nutritional status). Our study involved 17 people in the study group, 17 in the control group, and men and women aged 18 to 80. An appropriate volume of radical or palliative surgical interventions has been performed depending on the tumor size, cancer severity, and prevalence. We compared the clinical effectiveness of enteral and parenteral nutrition methods in the complex of postoperative therapeutic measures on the hepato-pancreatic-duodenal zone.

Results: We should evaluate the patient's nutritional status from cancer detection. There are screening methods to identify malnutrition, including a survey of patients, using standard anthropometric and laboratory data to evaluate the nutritional status and the degree of its violation.

The malnutritional indicator is evaluated in cancer patients using screening protocols: NRS 2002 (Nutritional Risk Screening), SGA (Subjective Global Assessment), and NRI (Nutritional Risk Index) [3, 4].

When evaluating NRS 2002 screening results, it is recommended to answer "yes" or "no" to four questions:

– Is the patient's body mass index below 20.5?

– Has the patient lost weight in the last three months?

– Has the patient's food intake decreased in the last week?

– Does the patient belong to the group of "serious illness"?

After receiving one positive response, a final screening is carried out to determine the degree of risk and further tactics. In case of negative answers to all four questions, re-screening is done at intervals of 1 per week to monitor the patient's condition. The SGA protocol can be an alternative to NRS 2002 [1, 2, 5]. SGA evaluates not only changes in anthropometric data but also the physiological parameters of the body. SGA includes the following evaluation criteria:

– Weight loss;

– Amount of food consumed;

– Gastrointestinal symptoms;

– Functional abilities;

– Effects depending on the underlying disease;

– Physical signs of malnutrition (loss of subcutaneous fat or muscle mass, edema, ascites).

According to the above criteria, patients were divided into three groups (A, B, C) – regular, moderate, and severe malnutrition.

An additional screening method for evaluating nutritional status is the NRI (Nutritional Risk Index). This protocol evaluates changes in body weight and serum albumin levels [5, 6].

The formula calculates the NRI: (1.519 × serum albumin, g/dL) + {41.7 × actual body weight (kg)/ideal body weight (kg)}.

After evaluating the test, the patient can be assigned to one of 3 groups:

1) no malnutritional (NRI>97.5),

2) moderate malnutrition (97.5 ≥ NRI ≥ 83.5),

3) severe malnutrition (NRI <83.5).

This type of screening is effective and used in cancer patients with gastrointestinal tumors [7-9].

We evaluated the nutritional status or violation risk during treatment using the screening protocol data to choose the method of treatment tactics.

The ASPEN recommends starting nutritional support as early as possible (within 24-48 hours) after stabilizing the patient's condition.

It is necessary to qualitatively determine the dosage of the drugs used and their composition to achieve the goal of therapeutic effect from nutrition.

Malnutrition correction is based on the patient's needs and requires consideration of the energy consumed and the quantitative combination of substrates. Considering energy consumption and preventing energy deficit, the required number of calories is set for each patient [10-12].

One of the methods for evaluating the energy needs of cancer patients is the calculation of constant indicators of body weight (energy – 35 kcal/kg, protein – 1.5 g/kg). Calculating the leading indicators is possible using modern computer programs to consider the peculiarities of the disease course and each patient treatment. These programs also allow calculating the individual patient's need for energy and essential nutrients.

Cancer patients need a systematic approach to nutrition. It is necessary to continue at all treatment stages, including in the future, in providing outpatient care. Patients with special metabolic needs and with primary metabolic disorders require special care before and after the surgery [13-15].

Scheme for determining the nutritional support:

1. Evaluation of nutritional status.

2. The patient's nutritional costs evaluation regarding essential nutrients (energy, protein).

3. Determination of correction methods of clinical nutrition (parenteral, enteral, or combined).

4. Monitoring the patient's condition.

The cancer patient's nutritional supply is based on therapeutic diet programming, considering energy and plasticity needs, which are a prerequisite for achieving the goal of cancer treatment and rehabilitation. Clinical nutrition in intensive care should begin from the first days [16, 17].

The study groups of nutritional support:

– Parenteral nutrition, partial or complete;

– Enteral nutrition;

– Combined nutrition (parenteral and enteral).

With parenteral nutrition, the mixture should be administered on the first day at a 50 mmL/h rate. Each subsequent day, the injection rate increases by 25 mmL/h. In this case, the mixture consumption should not exceed 125 mmL/h. The mixture introduction continues for 18-20 hours during the day [1, 2, 18].

The daily volume of 250-500-1000 ML is evenly distributed in 6-8 doses for 12-14 hours.

Basic requirements for food quality:

– sufficient caloric content (not less than 1 kcal / ML);

– lactose-free or low lactose;

– adapted, that is, it contains all the vitamins and minerals;

– low osmolarity – no more than 340 mmol/L;

– low viscosity for regular injection;

– high quality of ingredients texture (easily digested and absorbed);

– balanced, with an optimal ratio of ingredients;

– calorie content of the nutrient mixture and introduced nitrogen (under stress, the calorie/nitrogen ratio is considered optimal – about 120-180 non-protein kcal per 1 g of nitrogen);

– when the mixture is administered outside the gastroduodenal section of the digestive tract, it contains a small" slag" residue;

– does not cause dangerous stimulation of intestinal motility and evacuation activity of the large intestine [19].

Contraindications to enteral nutrition:

1. Ischemia and intestinal perforation;

2. Gastrointestinal bleeding;

3. Intestinal obstruction;

4. Severe nausea and vomiting that do not correspond to the standard regimens for taking antiemetics;

5. Abdominal compartment syndrome;

6. Persistent incurable diarrhea.

Parenteral nutrition is the introduction of nutrients into the body, bypassing the gastrointestinal tract (root bed). Parenteral nutrition can be complete or incomplete. In general, parenteral nutrition provides the entire daily caloric requirement of the body. Incomplete parenteral nutrition is necessary to partially compensate for the lack of nutrients that cannot be fully assimilated with enteral nutrition.

Semi-parenteral nutrition should be considered as an aid. Nevertheless, this type of nutritional supply is widely used in the pre-and postoperative period to meet the daily requirement for energy and plastic substrates to restore and maintain water-electrolyte and acid-base balance in cases where complete enteral nutrition is impossible.

The main components of parenteral nutrition:

1. Energy sources-glucose Solutions (10%, 20%, 30%) and oil emulsions.

2. Sources of plastic material for protein synthesis are solutions of crystalline amino acids.

3. Multivitamin complexes (water and fat-soluble vitamin preparations).

4. Microelement complexes for parenteral administration.

5. Mixed vessels "two in one" (amino acid solution+ glucose) and "three in one" (amino acid solution+glucose+fat emulsion) [1, 3, 20].

Parenteral feeding modes:

Round-the-clock input:

– Optimal for hospital patients;

– Best durability and use of substrates;

Infusion lasting 18-20 hours:

– Good endurance;

– It is recommended to introduce 5% glucose at intervals;

Cyclic mode-infusion for 8-12 hours:

– Convenient for Parenteral Nutrition at home;

– Good endurance after a period of adaptation.

Contraindications to parenteral nutrition:

– Shock (increase in the dose of vasopressors)

– Anuria or hyperhydration without dialysis;

– Fat embolism (for Fat Emulsions);

– Serum lactate>3 mmol/L, hypoxia pO_2<60 mmHg.St.;

– pCO_2>80 mmHg.St., acidosis-pH<7.2;

– Intolerance to individual food components or anaphylaxis.

Mixed food.

In the postoperative period, the patient can be administered simultaneously with a gradual increase in enteral and parenteral nutrition and a decrease in parenteral nutrition.

Patients nutritional status on Days 10-12 of the preoperative and postoperative period confirmed the nutritional status in two groups as usual and insufficient according to the NRI evaluation methods – 11/6 for the study group and 15/2 for the control group.

Thus, in 26 patients, the NRI index was considered harmful (normal nutritional status), and in 8 patients – actually positive (moderate malnutrition).

Before surgery, according to the SGA assessment, 11 patients in the study group ate usually, and six did not eat moderately. In the control group, SGA scores showed normal in 15 patients and average nutritional status in 2 patients.

Patients in the control group (n=17) on Days 10-12 were in a state of normal nutrition according to the SGA and NRI. 2 patients were in moderate malnutrition. After enteral nutrition was added (on Days 13-15), no malnutrition cases in this group were detected. According to the report, the aver-

age values of metabolic needs, namely energy and protein requirements, were 35.2±3.5 kcal/kg or 2200-2500 kcal/day and 1.5±0.09 kcal/kg/day in both groups or 80-100 kcal/day, respectively. The central metabolism showed that at the beginning of the control period – before the operation and later on postoperative Days 3, 8, and 15 there were no significant differences between the groups ($p<0.1$) [6, 7].

Thus, the magnitude of this difference was due to the preservation of parietal digestion in the gastrointestinal tract in the early postoperative period despite postoperative intestinal paresis. Patients' average weight of the leading and control groups was 79.2±4.11 and 80.8±6.1 kg, respectively, on Days 2-3 of the postoperative period, and there was a slight but significant difference between the groups in the comparative aspect up to Days 8-10.

The total blood protein in the subjects showed a significant difference between the average values of indicators in clinical groups for the entire study period ($p<0.05$). The average total blood protein by Day 8 after surgery was 62.5±10.0 g/L in the study group and 57.5±10.1 g/L in the control group.

The dynamics of the number of lymphocytes on Days 3-5 after the surgery revealed a significant, more than 2-fold decrease in the level in groups up to 10.5±4.8%, which was subsequently replaced by an increase and normalization of lymphocytes on Day 10 – up to 21.9±5.6% and the optimal level by the time of transfer of patients to a specialized department, on average 24.6 ±4.4%.

When evaluating the results of Days 5-7 of total bilirubin in both groups, the range of its values averaged 17.6±8.3 μmol/L. in patients with obstructive jaundice, bilirubin in the blood directly exceeded the norm on the first day of the preoperative and postoperative period more than 7-8 times. On Days 5-7, there was a tendency to reduce its level by 5-6 times, persisted until discharge from the hospital [10, 11].

The results of ALT and AST analysis of blood transaminases in groups reached a 10-fold increase on Day 1 after surgery, primarily ALT, as a more specific test for damage to the liver parenchyma, – 412.3±105.5 and to a lesser extent AST-102.3±17.9 EB/L, and then on Days 4-5 a decrease in ALT on average 153.8±55.6 EB/L.

Discussion: Analysis of the dynamics of clinical efficacy indicators of treatment in the study group, the duration of stay in the postoperative hospital was 13.0±5.0 days, significantly less than in the control group – 17.5±10.8 days ($p<0.09$). The results within the numerical values' limits adequately reflect more detailed information and are confirmed in a few literary sources [6, 10, 14, 16, 17].

According to the leading and control groups, the average time spent in the intensive care unit of patients has differed depending on the surgery volume. It amounted to 2.9±2.7 and 4.3±2.1 days ($p>0.06$).

Based on the results of this work, according to a consolidated analysis of clinical and laboratory data, the enteral method comes to the fore in the context of the comparative effectiveness of nutritional support, confirmed in several literary sources [2-7, 15, 18].

In the absence of pronounced intestinal paresis and persistent purulent discharge from the stomach in the early postoperative period, the effectiveness of enteral/tube nutrition prevails in this group of patients.

In general, the results obtained based on a specific contingent (cancer patients in the early postoperative period) adequately reflect the positive aspects of the use of the enteral/tube route of nutrition support compared to the parenteral method only in the absence of pronounced postoperative intestinal paresis and dynamic intestinal obstruction [1, 2, 9, 14, 16].

Each type of nutrition support has its characteristics of implementation. Of course, the natural way of eating is usually in the first place. It is preferable if the absorption of energy substrates and nutritional components is maintained in the gastrointestinal tract.

Conclusion: We conducted clinical trials to study the timing of the onset of nutritional support and methods for its implementation despite the proven relationship between the use of certain species (enteral, parenteral nutrition) worldwide for many years. In various pathological conditions, its duration remains the subject of clinical research.

However, not all of them found a significant effect of diet therapy on immediate and long-term outcomes, especially in patients with normal nutritional status or moderate malnutrition. The conducted studies are distinguished by the heterogeneity of the contingent of patients and the use of different options for nutritional support (parenteral nutrition, enteral nutrition) [1, 2, 20].

In patients with a general surgical profile, the positive effect of nutritional therapy is manifested mainly in severe nutritional insufficiency before the start of treatment or in the absence of complete enteral nutrition for a long time. The nature of the operation at that time and the effectiveness and expediency of nutritional support in patients with tumors of the oropharyngeal zone and esophageal cancer were beyond doubt and have been confirmed by numerous studies.

Conducting clinical nutrition before and after the surgery is crucial to treating cancer patients. Ineffectiveness and insufficient feeding of cancer patients can lead to a deterioration in the immediate and long-term treatment results, a decrease in the tolerability of therapy, and a deterioration in the quality of life.

Nutritional support is paramount for patients who cannot ensure a healthy diet for more than 14 days in the postoperative period. When planning nutritional therapy, preference should be given to its simplest and most physiological version – the oral intake of mixed and balanced nutritional mixtures. If oral administration is impossible, they resort to tubular enteral nutrition; only the last turn is parenteral.

Thus, nutritional support at various stages of cancer patients' complex treatment makes it possible to reduce the frequency of postoperative complications and the duration of hospital stay, prevent interruption of the course of treatment, and increase the tolerability of conservative anti-cancer therapy.

References

1. Khomyakov V.M., Ermoshina A.D. Korrekcija nutritivnoj nedostatochnosti u onkologicheskih bol'nyh s ispol'zovaniem gotovyh smesej dlja peroral'nogo pitanija (sipinga) // Issl. Prakt. Med. – 2015. – №2(3). – S. 82-88 [Khomyakov V.M., Ermoshina A.D. Correction of nutritional insufficiency in cancer patients using ready-made mixtures for oral nutrition (siping) // Res. Prac. Med. – 2015. – №2(3). – P. 82-88 (in Russ.)]. https://doi.org/10.17709/2409-2231-2015-2-3-82-88.

2. Galushko O.A. Nutritivnaja podderzhka bol'nyh v otdelenii intensivnoj terapii: starye pravila i novye vozmozhnosti // Med. Neotl. Sost. – 2015 – №4. – S. 58-62 [Galushko O.A. Nutritional support of patients in the intensive care unit: old rules and new opportunities // Med. Emerg. Cond. – 2015. – №4. – P. 58-62 (in Russ.)]. https://cyberleninka.ru/article/n/nutritivnaya-podderzhka-bolnyh-v-otdelenii-intensivnoy-terapii-starye-pravila-i-novye-vozmozhnosti.

3. Ovchinnikova A.I., Gordeev S.S., Kovaleva Yu.Yu., Ivanov V.A., Baichorov A. B., Rasulov A. O. Perioperacionnaja nutritivnaja podderzhka bol'nyh kolorektal'nym rakom // Onkol. Koloproktol. – 2016. – T. 6, №4. – S. 9-12 [Ovchinnikova A.I., Gordeev S.S., Kovaleva Yu.Yu., Ivanov V.A., Baychorov A.B., Rasulov A.O. Perioperative nutritional support for patients with colorectal cancer // Oncological Coloproctology. - 2016. – Vol. 6, No.4. – P. 9-12. (in Russ.)] https://doi.org/10.17650/2220-3478-2016-6-4-9-12

4. Snegovoy A.V., Leiderman I.N., Saltanov A.I., Selchuk V.U. Osnovnye principy i tehnologii klinicheskogo pitanija v onkologii: Metodicheskoe rukovodstvo dlja vrachej. – M., 2009 [Snegovoy A.V., Leiderman I.N., Saltanov A.I., Selchuk V.U. Basic principles and technologies of clinical nutrition in oncology: method. hands for doctors. – M., 2009 (in Russ.)].

5. Davanov Sh.K., Kabyldina N.A. Osobennosti nutritivnoy podderzhki v rannem posleoperatsionnom periode u onkologicheskikh bol'nykh // Astana Med. J. – 2019. – № 3 (101). – S. 288-294 [Davanov Sh.K., Abildina N.A. Features of nutritional support in the early postoperative period in oncological patients // Astana Med.J. – 2019. – №3(101). – P. 288-294 (in Russ.)]. https://pps.kaznu.kz/kz/Main/FileShow2/156066/75/123/1588/Есимсиитова%203ура%20Беркутовна/2020/1

6. Davanov Sh.K., Orazbaev B.A, Polujektova Ja.L., Kabildina N.A., Cialkovskaja-Rush A., Degembaev S.S., Vorotyncev N.S. Ocenka dinamiki osnovnogo obmena u pacientov onkologicheskogo profilja v rannem posleoperacionnom periode pri provedenii rannego jenteral'nogo pitanija // Astana Med. J. – 2019. – №4 (102). – S. 172-178 [Davanov Sh.K., Orazbaev B.A, Polujektova Ja.L., Kabildina N.A., Cialkovskaja-Rush A., Degembaev S.S., Vorotyncev N.S. Assessment of the dynamics of basal metabolism in oncological patients in the early postoperative period during early enteral nutrition // Astana Med. J. – 2019. – №4(102). – P. 172-178. (in Russ.)]. https://amu.edu.kz/upload/iblock/4fc/4fc5b1563150dd0f09caea1df077a652.pdf

7. Petzel M.Q.B., Hoffman L. Nutrition Implications for Long-Term Survivors of Pancreatic Cancer Surgery // Nutr. Clin. Pract. – 2017. – Vol. 32(5). – P. 588-598. https://doi.org/10.1177/0884533617722929

8. Prasad N., Sinha A., Gupta A., Bhadauria D., Manjunath R., Kaul A., Sharma R.K.. Validity of nutrition risk index as a malnutrition screening tool compared with subjective global assessment in end-stage renal disease patients on peritoneal dialysis // Indian J. Nephrol. – 2016. – Vol. 26(1). – P. 27-32. https://doi.org/10.4103/0971-4065.158449

9. Yang F., Wei L., Huo X., Ding Y., Zhou X., Liu D. Effects of early postoperative enteral nutrition versus usual care on serum albumin, pre-albumin, transferrin, time to first flatus and postoperative hospital stay for patients with colorectal cancer: A systematic review and meta-analysis // Contemp. Nurse. – 2018. – Vol. 54(6). – P. 561-77. https://doi.org/10.1080/10376178.2018.1513809

10. Na B.G., Han S.S., Cho Y.A., Wie G.A., Kim J.Y., Lee J.M., Lee S.D., Kim S.H., Park S.J.. Nutritional Status of Patients with Cancer: A Prospective Cohort Study of 1,588 Hospitalized Patients // Nutr. Cancer. – 2018. – Vol. 70(8). – P. 1228-1236. https://doi.org/10.1080/01635581.2019.1578392

11. Liu F.F., Wang L.M., Rong W.Q., Wu F., Wu J.X. Clinical effectiveness of postoperative nutritional support in patients undergoing hepatectomy for hepatocellular carcinoma // Zhonghua Zhong Liu Za Zhi. – 2018. – Vol. 40(10). – P. 787-792. https://doi.org/10.3760/cma.j.issn.0253-3766.2018.10.012

12. Mariette C. Immunonutrition // Journal of Visceral Surgery. – 2015. – Vol. 1(152). – P. 14-17. https://doi.org/10.1016/s1878-7886(15)30005-9

13. Aprile G., Basile D., Giaretta R., Schiavo G., La Verde N., Corradi E., Monge T., Agustoni F., Stragliotto S. The Clinical Value of Nutritional before and during Active Cancer Treatment // Nutrients. – 2021. – Vol. 13(4). – P. 1196. https://doi.org/10.3390/nu13041196

14. Gianotti L., Besselink M.G., Sandini M., Hackert T., Conlon K., Gerritsen A., Griffin O., Fingerhut A., Probst P., Abu Hilal M., Marchegiani G., Nappo G., Zerbi A., Amodio A., Perinel J., Adham M., Raimondo M., Asbun H.J., Sato A., Takaori K., Shrikhande S.V., Del Chiaro M., Bockhorn M., Izbicki J.R., Dervenis C., Charnley R.M., Martignoni M.E., Friess H., De Pretis N., Radenkovic D., Montorsi M., Sarr M.G., Vollmer C.M., Frulloni L., Büchler M.W., Bassi C. Nutritional support and therapy in pancreatic surgery: A position paper of the International Study Group on Pancreatic Surgery (ISGPS) // Surgery. – 2018. – Vol. 164(5). – P. 1035-1048. https://doi.org/10.1016/j.surg.2018.05.040

15. Jiang Z., Wen C., Wang C., Zhao Z., Bo L., Wan X., Deng X. Plasma metabolomics of early parenteral nutrition followed with enteral nutrition in pancreatic surgery patients // Sci. Rep. – 2019. – Vol. 9(1). – P. 18846. https://doi.org/10.1038/s41598-019-55440-z

16. Takagi K., Domagala P., Hartog H., Van Eijck C., Groot Koerkamp B. Current evidence of nutritional therapy in pancreatoduodenectomy: Systematic review of randomized controlled trials // Ann. Gastroenterol Surg. – 2019. – Vol. 3(6). – P. 620-629. https://doi.org/10.1002/ags3.12287

17. Castillo-Martínez L., Castro-Eguiluz D., Copca-Mendoza E.T., Pérez-Camargo D.A., Reyes-Torres C.A., Ávila E.A., López-Córdova G., Fuentes-Hernández M.R., Cetina-Pérez L., Milke-García M.D.P. Nutritional Assessment Tools for the Identification of Malnutrition and Nutritional Risk Associated with Cancer Treatment // Rev. Invest. Clin. – 2018. – Vol. 70(3). – P. 121-125. https://doi.org/10.24875/RIC.18002524

18. Weimann A., Braga M., Carli F., Higashiguchi T., Hübner M., Klek S., Laviano A., Ljungqvist O., Lobo D.N., Martindale R, Waitzberg D.L., Bischoff S.C., Singer P. ESPEN guideline: Clinical nutrition in surgery // Clin. Nutr. – 2017. – Vol. 36(3). – P. 623-650. https://doi.org/10.1016/j.clnu.2017.02.013.

19. Bozzetti F., Mariani L. Perioperative nutritional support of patients undergoing pancreatic surgery in the age of ERAS // Nutrition. – 2014. – Vol. 30.(11-12). – P. 1267-1271. https://doi.org/10.1016/j.nut.2014.03.002.

20. Gilliland T.M., Villafane-Ferriol N., Shah K.P., Shah R.M., Tran Cao H.S., Massarweh N.N., Silberfein E.J., Choi E.A., Hsu C., McElhany A.L., Barakat O., Fisher W., Van Buren G. Nutritional and Metabolic Derangements in Pancreatic Cancer and Pancreatic Resection // Nutrients. – 2017. – Vol. 9(3). – P. 243. https://doi.org/10.3390/nu9030243

АҢДАТПА

ОНКОЛОГИЯЛЫҚ НАУҚАСТАРДЫ ОПЕРАЦИЯДАН КЕЙІНГІ ЕРТЕ КЕЗЕҢДЕ ҚОРЕКТІК ҚОЛДАУ

Ш.К. Даванов[1], Л.С. Мусина[1]

[1]«Қарағанды медицина университеті» КЕАҚ, Қарағанды, Қазақстан Республикасы

Өзектілігі: *Қазіргі заманғы медицинада науқастардың тамақтану жағдайын бағалау көптеген клиникалық медицина мамандарының назарында. Онкологиялық патологиялардың ішінде тағамдық жетіспеушілік жағдайларының саны 65-85% жетеді және өсу үрдісі бар.*

Науқастардың тамақтану жағдайының бұзылуы өмір сүру ұзақтығының қысқаруымен, емдеу нәтижелерінің дерегу және ұзақ мерзімді көрсеткіштерінің нашарлауымен, терапияның төзімділігінің және өмір сүру сапасының төмендеуімен бірге жүреді.

Онкологиялық науқастардың тамақтану жағдайын ерте бағалау және қоректік заттардың жетіспеушілігін анықтау тамақтану терапиясын уақтылы бастауға мүмкіндік береді, операцияға дейінгі және операциядан кейінгі кезеңдердің өтуіне оң әсер

етеді. Сайып келгенде, бұл операциядан кейінгі асқынулардың төмендеуіне әкеледі және науқастардың ауруханада болу ұзақтығын қысқартады. Мақалада онкологиялық науқастардың операциядан кейінгі ерте кезеңде тамақтану жағдайын бағалау ерекшеліктері мен клиникалық тамақтануды түзету әдістері көрсетілген.

***Зерттеудің мақсаты** – онкологиялық науқастарда операциядан кейінгі ерте кезеңде тағамдық тамақтанудың тиімділігін талдау және оны жүзеге асырудың оңтайлы әдісін анықтау.*

***Әдістері:** Гепатопанкреатодуоденальды аймақта операциядан кейінгі емдік шаралар кешенінде тамақтануды қолдау әдістерін – энтеральді және парентеральді тамақтануды қолданудың клиникалық тиімділігіне салыстырмалы бағалау жүргізілді.*

***Нәтижелері:** Операциядан кейінгі кезеңнің 10-12 күнінде бақылау тобындағы 17 пациенттің 12-сі Субъективті жаһандық бағалау (SGA) және тағамдық тәуекел индексі (NRI) бойынша қалыпты тамақтану күйінде, ал 5 адам күйде болды. орташа жеткіліксіз тамақтану. Парентеральді қоректену энтеральдіге ауысқаннан бері (13-15-ші күндері) – осы топта тамақтанбау белгілері бар науқастар анықталмады. Зерттелетіндердің жалпы қан ақуызын талдау зерттеудің бүкіл кезеңінде клиникалық топтардағы көрсеткіштердің орташа мәндері арасындағы айтарлықтай айырмашылықты көрсетті ($p<0,05$). Негізгі топта жалпы қан ақуызының орташа мөлшері 62,5±10,0 г/л, бақылау тобында операциядан кейінгі кезеңнің 8 күніне 57,5±10,1 г/л. Қанның биохимиялық құрамын талдау нәтижелерінің өзгеруі хирургиялық араласудың көлеміне, операцияның ұзақтығы мен сипатына байланысты.*

***Қорытынды:** Операциядан кейінгі ерте кезеңде гепато-панкреатодуоденальды аймақтың ісіктері бойынша операция жасалған онкологиялық науқастарда тағамдық тамақтануды қолданғанда, егер айқын ішек парезі және асқазаннан іріңді бөліністер болмаса, қоректік қоспаларды енгізудің энтеральді жолы қолайлы.*

***Түйінді сөздер:** тағамдық жетіспеушілік, тағамдық қолдау, қатерлі ісік, онкологиялық науқастар, энтеральді тамақтану, парентеральді тамақтану.*

АННОТАЦИЯ

НУТРИТИВНАЯ ПОДДЕРЖКА ОНКОЛОГИЧЕСКИХ БОЛЬНЫХ В РАННЕМ ПОСЛЕОПЕРАЦИОННОМ ПЕРИОДЕ

Ш.К. Даванов[1], Л.С.Мусина[1]

[1]НАО «Медицинский университет Караганды», Караганда, Республика Казахстан

***Актуальность:** Оценка нутритивного статуса больных является первоочередной задачей для многих специалистов современной медицины. Заболеваемость онкологической патологией на фоне нутритивной недостаточности ежегодно возрастает на 65-85%. Нутритивный статус больных рекомендуется контролировать при уменьшении продолжительности жизни, ухудшении непосредственных и отдаленных результатов лечения, резистентности к лечению, снижении эффективности проводимой терапии и качества жизни. Раннее выявление нутритивной недостаточности и оценка нутритивного статуса больных позволяют своевременно назначить нутритивную терапию и оказывают положительный эффект до, во время и после операции, снижая частоту послеоперационных осложнений и сроки пребывания в стационаре. В данной статье показаны особенности оценки нутритивного статуса и методы коррекции лечебного питания.*

***Цель исследования** – анализ эффективности питания онкологических больных в раннем послеоперационном периоде и определение оптимального способа его проведения.*

***Методы:** Проведена сравнительная оценка клинической эффективности применения методов энтерального и парентерального питания в комплексе послеоперационных лечебных мероприятий на гепатопанкреатодуоденальной области.*

***Результаты:** На 10-12 сутки после операции, 12 из 17 пациентов контрольной группы находились в состоянии нормального пищевого статуса согласно Субъективной Глобальной Оценке (SGA) и Индексу нутритивного риска (NRI), а 5 пациентов были в состоянии умеренного недоедания. С момента подключения энтерального питания (13-15 сутки), пациентов с признаками недоедания в данной группе не выявлялось. При анализе общего белка крови у обследуемых выявлено достоверное различие между средними значениями показателей в клинических группах в течение всего периода исследования ($p<0,05$). В основной группе среднее содержание общего белка крови составило 62,5±10,0 г/л, в контрольной группе – 57,5±10,1г/л к 8 суткам послеоперационного периода. Изменение биохимического состава крови обусловлено объемом хирургического вмешательства, длительностью и характером операции.*

***Заключение:** При использовании нутритивного питания у пациентов онкологического профиля, прооперированных по поводу опухолей гепатопанкреатодуоденальной области, в раннем послеоперационном периоде предпочтителен энтеральный путь введения питательных смесей при условии отсутствия выраженного пареза кишечника и гнойных выделений из желудка.*

***Ключевые слова:** нутритивная недостаточность, нутритивная поддержка, рак, онкологические больные, энтеральное питание, парентеральное питание.*

***Transparency of the study:** Authors take full responsibility for the content of this manuscript.*
***Conflict of interest:** Authors declare no conflict of interest.*
***Financing:** Authors declare no financing of the study.*
***Authors' input:** contribution to the study concept – Davanov Sh.K.; study design – Davanov Sh.K.; execution of the study – Davanov Sh.K.; interpretation of the study – Musina L.S.; preparation of the manuscript – Davanov Sh.K.*
Authors' data:
Davanov Sh.K. (corresponding author) – Assistant Researcher, PhD, Emergency Medicine, Anesthesiology and Intensive Care Department of «Karaganda Medical University» NCJSC, Karaganda, the Republic of Kazakhstan, tel. +77015530298, e-mail: Sherzad85@mail.ru, ORCID ID: 0000-0002-7269-0069;
Musina L.S. – Teacher-tutor, Emergency Medicine, Anesthesiology and Intensive Care Department of «Karaganda Medical University» NCJSC, Karaganda, the Republic of Kazakhstan, tel. +77775405088, e-mail: Lazzatmusina72@mail.ru,ORCID ID: 0009-0004-2454-9847.

Address for correspondence: Davanov Sh.K., «Karaganda Medical University» NCJSC, Gogol St. 40, Karaganda 100000, the Republic of Kazakhstan.