ANNOTATION

Doctoral dissertation for the degree
Doctor of Philosophy (PhD)

Davanov Sherzad Kurbanalievich
Department of Emergency Medicine, Anesthesiology and Reanimatology, NAO MUK

On the topic:

"Nutritional support of patients operated on for malignant tumors of the hepatopancreatoduodenal zone in the early postoperative period"

Specialty: 6D110100 - "Medicine"

Scientific consultants:
Doctor of Medical Sciences, Professor
of the Department of Oncology, NAO MUK
K.Zh. Musulmanbekov
Candidate of Medical Sciences, Assistant Professor,
Head of the Department of Emergency Medicine,
Anesthesiology and Reanimatology, NAO MUK
D.V. Vasiliev
Foreign consultant: Professor MD, PhD of
the Medical University of Lodz, Poland
Alexandra Dorota Tsialkovskaya-Rusch

The Republic of Kazakhstan

Karaganda, 2022

Relevance of the topic. Timely therapy of malignant tumors of the hepatopancreatoduodenal zone remains one of the most pressing problems of clinical oncology. Tumors of the hepatopancreatoduodenal zone are the most difficult, as they are accompanied by obstructive jaundice, pancreatitis and liver failure, the treatment of which is still a topical issue. The selection of the correct surgical or conservative therapy is a fundamental issue that determines the patient's life expectancy. Patients being treated in the intensive care unit or the surgical department have signs of protein-energy deficiency. In most cases, patients continue to be admitted to specialized hospitals only with the development of various complications of cancer of the organs of the hepatopancreatoduodenal zone. Violation of the nutritional status has a significant effect on the outcome and prognosis of the disease, forcedly increases the duration and cost of treatment, contributes to an increase in mortality and the number of complications, a change in carbohydrate-protein metabolism, a violation of tissue trophism, as a result, a slowdown in wound healing, a decrease in immunity, hemocoagulation disorders, and also a long hospital stay. H.O. Stadley (2014) showed that with a loss of malnourished patients 20% of body weight from the initial, mortality after surgery reached 33%, and in non-malnourished patients - 3.5%. Given these data, the correct timely assessment of the nutritional status of patients with diseases of the hepatopancreata-duodenal zone is one of the first steps in intensive care and prevention of further progression of nutritional deficiency. An early start to the use of nutritional nutrition in the postoperative period, taking into account the volume of surgical intervention, contributes to the early restoration of intestinal function. When a decrease in the phenomena of nutritional deficiency is achieved, prevention of excessive microbial contamination of the gastrointestinal tract, earlier restoration of carbohydrate-protein metabolism, the immune system and activation of the patient, due to a decrease in the duration of stay in the intensive care unit, is noted. Currently, there are many options and protocols for assessing nutritional status and correction of nutritional support in the early postoperative period in patients with hepatopancreatoduodenal diseases. One of the main tasks is the correct selection of nutritional support, depending on the volume and method of surgical treatment.

Purpose of the study: Improvement of the nutritional status of cancer patients after operations carried out in the hepatopancreatoduodenal zone in connection with malignant neoplasms by means of a comprehensive comparative analysis of the effectiveness of isolated enteral, isolated parenteral and mixed types of nutritional support in the early postoperative period.

Scientific hypothesis

Full and comprehensive nutritional support of patients operated on for malignant neoplasms of the hepatopancreatoduodenal zone, in the form of various approaches and methods of delivering nutrients to patients in the early postoperative period, allows improving the functional activity of the gastrointestinal tract of patients, stabilizing the level of carbohydrate, protein, basal metabolism, accelerating transfer to full enteral nutrition and shorten the length of stay in the intensive care unit and, ultimately, in the hospital.

Research objectives:

1. To conduct a comparative assessment of the dynamics of nutritional deficiency and nutritional status of patients operated on for malignant tumors of the hepatopancreatoduodenal zone in the early postoperative period with isolated enteral, isolated parenteral and mixed nutritional support.

2. To analyze the dynamics of the state of protein and carbohydrate metabolism, the consistency of liver function in cancer patients operated on for malignant tumors of the hepatopancreatoduodenal zone, against the background of isolated enteral, isolated parenteral and mixed nutritional support in the early postoperative period.

3. To determine the degree of effectiveness of these methods of nutritional support in this category of patients on the basis of the totality of the results of the assessment of nutritional consistency and the dynamics of the basal metabolic rate in these patients in the early postoperative period.

Scientific novelty

The paper presents for the first time a comprehensive comparative analysis of the effect of isolated enteral, isolated parenteral and mixed types of nutrition on the dynamics of nutritional status according to the screening scales NRS, SGA and NRI, the dynamics of laboratory parameters of protein, carbohydrate metabolism, on the level of basal metabolism, markers of the functional viability of the liver in the early postoperative period. period in cancer patients operated on for malignant tumors of the hepatopancreatoduodenal zone.

The main provisions for the defense:

1. The use of a mixed type of nutrition in the early postoperative period allows maintaining the original truly negative nutritional status in 69.8% of patients with an increase in the number of patients with mild nutritional deficiency by 13.6% due to a decrease in the manifestations of moderate and complete regression of severe nutritional deficiency. In groups with isolated enteral and parenteral nutrition, there is a decrease in the number of patients with a negative nutritional status by 11.6% and 12.8%, respectively, with a proportional increase in mild nutritional deficiency due to a decrease in the manifestations of moderate by 13.3% and complete regression of severe degree. nutritional insolvency.
2. The use of a mixed type of nutritional support in this category of patients allows reducing the level of basal metabolism, on average, by 17.38% relative to the isolated enteral and parenteral type of nutrition due to the parallel delivery of energy substrates through the gastrointestinal tract and by the parenteral route, leading to a more complete covering the energy requirements of patients (2480.0 ± 95.80 kcal / day) on the 13-15th day of the early postoperative period.
3. Based on a comprehensive assessment of clinical and laboratory criteria for the consistency of the nutritional status of patients of this profile, predictors of effective nutritional support were determined in the form of dynamic monitoring of indicators of total blood protein, blood glucose levels, blood transferrin, the value of transaminases and total blood bilirubin, dynamics of the calculated basal metabolic rate in early postoperative period.

The practical significance of the work

A comparative assessment of the nutritional status and methods of nutritional support allows to improve the results of treatment of patients with pathology of the hepatopancreatodudonal zone, to reduce the duration of their inpatient surgical treatment. In a comparative assessment of the effectiveness of nutritional support methods, the advantages of a mixed type of nutrition and its clinical effectiveness in relation to isolated enteral and parenteral nutrition were shown: a positive effect of a mixed type of nutrition on the rate of recovery of protein metabolism, the dynamics of the basal metabolic rate in the form of its decrease by the end of nutritional support and on a decrease in the timing of the restoration of the peristalsis of the gastrointestinal tract.

It is scientifically substantiated that in the complex of preoperative examination in patients with pathology of the hepatopancreatodudonal zone, it is necessary to assess the degree of nutritional deficiency. It has been demonstrated that a mandatory component of the complex of measures after surgery in the hepatopancreatoduodenal zone, the most important component of treatment in the postoperative period should be comprehensive nutritional support.

Recommendations are given on the technique of early enteral, parenteral and mixed type of nutrition, calculation of calorie intake, volumes and timing of the use of these types of nutritional support in this contingent of patients.

Practical value. The data obtained as a result of the conducted clinical trials have been introduced and applied in the intensive care unit and the surgery department of the KGP at the Polydisciplinary Hospital No. 3 (Regional Oncological Dispensary) in Karaganda. The act of introducing the results of research from 11.02.2019.

Approbation of work. The main results of the dissertation work were published at the VII CONGRESS OF ONCOLOGISTS AND RADIOLOGISTS OF KAZAKHSTAN with international participation on October 17-18, 2019, were reported and discussed at a meeting of the Department of Emergency Medicine, Anesthesiology and Reanimatology of NAO MUK.

Publications. On the topic of the dissertation, 8 publications have been published: 1) in an international scientific publication included in the Scopus database (the journal "Open Access Maced J Med Sci" and the journal Nutrition issues) - 2, in scientific publications, published in publications recommended by the KKSON (journal "Astana" - 3, in the materials of international conferences - 1, in the materials of republican conferences - 2.

Materials and research methods

At the first stage, modern ideas about methods for assessing nutritional status and methods of nutritional support in the early postoperative period of patients operated on for tumors of the hepatopancreatoduodenal zone were studied.

At the second stage, taking into account the need to choose the optimal method of nutritional support in the early postoperative period, the patients underwent an intragroup and intergroup comparative analysis of the main clinical and laboratory parameters reflecting the most satisfactory dynamics of plastic processes in relation to the type of nutritional support: enteral, parenteral and mixed.

To solve the set tasks, a prospective, longitudinal, parallel study and a retrospective analysis of the results of treatment of 91 patients with malignant tumors of the hepatopancreatoduodenal zone underwent the following operations:

1) resection of various segments of the liver
2) hemihepatectomy
3) transhepatic drainage of the right and left hepatic duct
4) bypass gastroenteroanastomosis or cholecystoenteroanastomosis with interintestinal entero-enteroanastomosis according to Brown
5) gastro-pancreatoduodenal resection
6) corporocaudal resection of the pancreas with splenectomy.

The paper provides a comparative assessment of the effectiveness of the methods of nutritional support used in patients of this category in the early postoperative period: enteral, parenteral and mixed, as a type of partial parenteral nutrition.

The first group (n = 31) included patients who received enteral nutrition (EN) after surgery. The second group (n = 30) included patients receiving parenteral nutrition (PN) and in the third group (n = 30) receiving mixed nutrition (MP), as a variation of the method of partial parenteral nutrition, in the early postoperative period.

At the first stage, the patient's clinical condition was assessed by screening with Nutritional Risk Screening (NRS, 2002), Subjective Global Assessment (SGA) and Nutritional Risk Index (NRI) protocols before surgery and on days 1, 5, 10 after surgery.

A comparative assessment of the clinical effectiveness of the use of types of nutritional nutrition in the complex of therapeutic measures after the indicated operations in the hepatopancreatoduodenal zone was carried out.

The parameters of nutritional status were assessed - body mass index, basal metabolic rate, laboratory parameters (blood hemoglobin, lymphocytes, total protein, serum albumin, serum transferrin, total bilirubin and direct, ALT, AST, blood glucose).

Additionally, the duration of ICU stay, re-admission of patients to the ICU and the duration of the postoperative bed-day were assessed, and the incidence of complications was calculated.

Conclusions:

1. According to the scales for assessing nutritional status NRI, NRS, SGA, the mixed type of nutritional support at the time of transfer of patients to the specialized department and upon completion of nutritional support in the specialized department by 12-15 days of the postoperative period showed a higher efficiency in stabilizing and maintaining the nutritional status of patients in a comparative aspect with the group of isolated enteral nutrition and parenteral nutrition due to an increase in the number of patients by 3.7% (p = 0.0503) with "moderate" nutritional deficiency and by 6.3% (p = 0.0029) with "normal »Nutritional status due to the reduction of patients with severe and moderate nutritional deficiencies, respectively (p = 0.000).

-In the groups with isolated enteral and parenteral nutrition, there is an increase in the number of patients with "moderate malnutrition" by 7.66% (p = 0.0028) and a decrease in the number of patients with a "normal" nutritional status by 5.92% (p = 0.015) with the complete elimination of severe nutritional deficiency in both groups (p = 0.000), which indicates a smaller number of patients in these groups with a truly negative (normal) nutritional status by the end of nutritional support.

2. Throughout the entire period of isolated enteral, parenteral and mixed nutritional support, all patients (100%) maintained a relatively constant blood sugar value and did not have statistically significant differences - 5.51 ± 1.27 mmol / L, 5.83 ± 1.06 mmol / L, 5.65 ± 1.18 mmol / L, respectively (p = 0.593). Isolated enteral, parenteral and mixed types of nutritional support in the majority of patients (73.3%, 67.7%, 63.3%) were accompanied by an increase in the level of total blood protein, on average, by 13.25% and 14.30%. 28.9%, respectively, by 10-15 days of the postoperative period due to a proportional increase in the level of blood albumin, in turn, by 11.6%, 12.80% and 12.85%, respectively (p = 0.001).

-The influence of the enteral type of nutrition on the consistency of the hepatic function was expressed in the form of a faster and more significant decrease in transaminases and direct blood bilirubin, on average, by 80.3% and 12.7%, respectively, in a comparative aspect with the group of parenteral and mixed type of nutrition, not had a statistically significant difference (p = 0.384): a decrease in these indicators by 72.2% - 11.5% and 7.26% -12.0% by the end of nutritional support, which may indicate a more significant effect of isolated enteral nutrition on stimulation bile outflow and intestinal motility in the early postoperative period.

3. In patients of all three groups, throughout the entire period of nutritional support, fluctuations in the level of basal metabolism were observed in mean values of 335.89 ± 53.6 kcal / day (13.44%, p = 0.0333) from the initial value - 1- 2 days of the postoperative period and were due to the variability of the body mass index and the dynamics of the temperature curve after the operation. In patients in groups with enteral and parenteral nutrition, by the end of nutritional support (15-20 days), the level of basal metabolism approaches its initial indicators - 2500.1 ± 353.4 kcal / day (p = 0.961) and 2350.0 ± 330 , 5 kcal / day (p = 0.492), respectively.

-With the mixed type of nutritional support, a statistically significant decrease in the level of basal metabolism is observed by 6.78% (2250.0 ± 105.2 kcal / day, p = 0.001), which allows us to conclude that a more effective coverage of patients' energy costs with this variant of nutritional support in a comparative aspect with isolated types of food.

Performer: Davanov Sh.K.