

Research Progress on the Concept of Rapid Postoperative Rehabilitation and Traditional Treatment of Intestinal Obstruction

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Abstract: The concept of fast rehabilitation is used to reduce the perioperative mortality and the incidence of complications by using multiple modes of intervention. At present, the clinical application is not systematic. Based on the systematic and holistic treatment ideas of the fast rehabilitation concept, combined with our current the traditional and traditional treatment methods, select the best, improve, and organize into a system that is suitable for the patient, adapts to the disease, prevents and promotes recovery, and increases the curative effect. Under the intervention of the patient, the patient can recover quickly in a comfortable and good way, and reduce unnecessary complications and postoperative discomfort.

1. Introduction

Intestinal obstruction is one of the more common acute abdomens in surgery. Intestinal obstruction can be differentiated into the categories of “abdominal distension”, “abdominal pain” and “guange” in traditional Chinese medicine. The concept of fast postoperative recovery was first proposed by Danish professor Henrik Kehlet, which refers to the use of multiple modes of intervention to reduce perioperative mortality and complication rates [1]. The optimization of the programs and measures implemented in the perioperative period can reduce the stress response of the operation and the unnecessary complications that may be caused, so as to achieve the purpose of accelerating the recovery of patients after the operation. [2] This article reviews the concept of rapid postoperative recovery and traditional treatment methods for intestinal obstruction, in order to provide clinical reference for postoperative rehabilitation of patients with intestinal obstruction.

2. Intestinal Obstruction and Concept of Enhanced Recovery after Surgery (Eras)

The movement disorder of intestinal contents caused by various reasons is collectively referred to as intestinal obstruction. We divided them into mechanical ileus, dynamic bowel Obstruction, blood supply intestinal obstruction three categories. According to whether there is blood flow disorder in the intestinal wall, it can be divided into two types: simple intestinal obstruction and strangulated intestinal obstruction. At the same time, there are various classification methods such

as location and degree [3]. These categories are interchangeable as the disease evolves. Simple ileus can develop into strangulated ileus because it is not treated in time; after a long mechanical delay, the excessive expansion of the bowel above the obstruction can also show clinical symptoms of paralytic ileus.

Postoperative ileus is a disorder of exhaust and defecation caused by tract motility disorder caused by surgery. Most of them are due to functional changes in gastrointestinal motility, which often last for 4-5d. Mechanical intestinal obstruction is an obstruction that occurs due to different reasons leading to the narrowing and obstruction of the intestinal lumen, which is significantly different from postoperative intestinal obstruction. There are three causes of mechanical intestinal obstruction: extraintestinal factors, intestinal wall factors, and intestinal factors. Adhesion belt compression, hernia incarceration, tumor compression, etc. are common extraintestinal factors; intussusception, tumor, inflammatory stenosis, etc. are intestinal wall factors; and ascaris obstruction, gallstones, foreign bodies and other blockages are intestinal factors.

Although there is no clear record of intestinal obstruction in the medical history literature, his clinical symptoms such as anal cessation of gas and defecation, abdominal pain, vomiting, nausea, and abdominal distension all provide us with the direction of dialectical diagnosis. Clinically, we can divide it into five syndromes: Qi stagnation and blood stasis syndrome, heat colon syndrome, cold coagulation bowel syndrome, dampness blocking water stasis syndrome, and insect blocking syndrome. Among them, the syndrome of qi stagnation and blood stasis is mainly characterized by abdominal pain, distention, fullness, refusal to press, nausea, vomiting, and cessation of exhausting stool, and is mainly distinguished by pale red tongue, thin white coating, stringy or astringent pulse ; It is characterized by fever, thirst, yellow and red urine , dizziness, delirium, red tongue, yellow dry coating, and rapid pulse; cold condensate in the intestines , the sudden onset of the disease, severe abdominal pain, severe in case of cold, and moderate in case of heat . Aversion to cold, chills, pale red tongue, thin white coating, tight pulse; dampness blockage syndrome is abdominal pain, bowel sounds, rumbling sound , pale red tongue , white greasy coating, slow pulse; insect blockage syndrome On the other hand, there is abdominal pain around the umbilicus , cord-like mass, spit ascarids, pale red tongue, thin white fur, and stringy pulse.[4]

The concept of ERAS is an innovative point in the field of surgical technology, including the technical operation of surgical operation, intraoperative anesthesia and pain relief technology, excellent nursing, nutrition and organ support, endoscopic and other minimally invasive techniques, etc. Its clinical application It should be used throughout the patient's hospital stay, as well as the entire process before and after surgery. The specific implementation of ERAS should be reduced before surgery in terms of patient preoperative preparation, respiratory function management, anesthesia assessment, pain treatment, reduction of surgical stress, postoperative care, nutritional support, and psychological intervention. The patient's fear caused by the environment and the operation should be changed according to the concept of preoperative fasting, and the discomfort caused by the tracheal intubation, urinary tube, gastric tube and other equipment during anesthesia to the patient, the liquid temperature during the operation, the limbs Peripheral insulation, postoperative pain management, etc. At the same time, the improvement of airway opening in the perioperative period to reduce postoperative respiratory and pulmonary complications is also an important part of the concept of rapid postoperative recovery.

The concept of ERAS is not generalized. It is roughly aimed at a certain field or direction. It should be aimed at a specific disease and specific operation of the patient. After a combination of various optimal plans, a better clinical effect can be finally achieved and reduced Complications, reduce the time and cost of hospitalization, and save public health resources.

3. Overview of the Pathogenesis of Intestinal Obstruction and the Concept of ERAS

Surgical research at home and abroad generally recognized that the pathogenesis of postoperative intestinal obstruction has two main aspects: 1. neural mechanism and 2. inflammatory mechanism[5]. Postoperative intra-abdominal adhesions lead to damage to the peritoneum, which in turn initiates an inflammatory response. After peritoneal injury, there will be an inflammatory response in the injured part, the vascular permeability will be enhanced and the migration of cells will be increased, and the damaged part will quickly form a fibrin network, and then aggregate macrophages here; at the same time, platelet growth factors are activated. Fibrocytes and mesothelial cells, enhance fibrinolytic activity and complete epithelial repair. At this time, the stability of the fibrinolytic system reaches equilibrium, and the excess cellulose will be dissolved and cleaned up. Postoperative ischemia results in the inhibition of this system, and the fibroblastic network will combine with the new blood vessels to form tight adhesions [6].

During surgery, the incised skin and exposure of the peritoneal cavity will produce certain stimuli. These stimuli are transmitted from the patient's surface nerves to the spinal cord. The afferent fibers of the spinal cord activate prevertebral sympathetic neurons, thereby inhibiting gastrointestinal motility. Local stimulation of the intestine during surgery will activate the brainstem pathway, prompting sympathetic neurons to release norepinephrine and inhibiting the slow wave of the gastrointestinal tract [7]. The motor nucleus of the vagus nerve is in an activated state at this time, which inhibits NO neurons and vasoactive peptides, and further inhibits the activity of the gastrointestinal tract. [8]

The interstitial cells of Cajal (ICC) in the small intestine will be used to regulate the peristalsis of the gastrointestinal tract after receiving the signals from the intestinal nerve, and at the same time, they can automatically depolarize and generate electrical signals, which are transmitted to the smooth muscle cells and the intestines. Slow wave peristalsis is formed. Some studies [9-10] indicated that after the operation, the inflammatory reaction of the intestinal wall, the structure and function of ICC were destroyed, and the gastrointestinal motility was eventually hindered. [11]

In the study of the mechanism, we need to pay attention to the development of a systematic and reasonable ERAS system through early intervention by selecting appropriate treatment methods, pre-judging the development of the patient's disease during the preoperative and postoperative perioperative period, and giving appropriate plans. The problem.

4. The Correlation between Traditional Clinical Treatment and ERAS Concept

The main principle of the treatment of intestinal obstruction: to correct the systemic physiological disorder, at the same time need to relieve the obstruction. The method needs to be determined according to the cause, location, nature, degree of the disease, and general conditions.

The rational choice of postoperative intestinal obstruction treatment has always been a problem for clinical practice, and it is also a huge challenge. Some scholars believe that [12] all complete obstruction should be treated by emergency surgery. Of course, surgery has its drawbacks. Some patients who can use conservative treatment methods will bear unnecessary risks, prolong hospitalization time, increase costs and other problems, and may also cause new adhesions. The traditional Chinese medicine treatment based on syndrome differentiation, acupuncture and moxibustion are also widely used in clinical practice.

4.1 Non-Surgical Treatment

Non-surgical treatment methods are based on the principles and directions of gastrointestinal decompression; correction of water and electrolyte disturbances, acid-base imbalance; parenteral

nutrition; prevention and treatment of infection, and symptomatic treatment.

Gastrointestinal decompression, reduce residual gas and liquid in the gastrointestinal tract, slow down swelling, promote blood circulation in the intestinal wall, and relieve the edema of the intestinal wall. However, after gastrointestinal decompression, it may increase the disturbance of water and electrolytes in the body. The most prominent physiological disorder of intestinal obstruction is electrolyte disorder and acid-base imbalance. The accumulation of digestive juice, the patient's vomiting can cause the loss of body fluids, and the disorder caused by gastrointestinal decompression. Patients will have blood pressure fluctuations, rapid pulse, lack of effective circulating blood volume, and even shock [13]. Therefore, it should be corrected as soon as possible. On the premise that the patient has no history of heart, lung, kidney, etc., the rate of fluid infusion can be slightly faster, and urine output and central venous pressure are monitored at the same time. If there is plasma, blood and other exudation, it is necessary to replenish plasma and whole blood in time.

Effective parenteral nutritional support is also very important for patients with intestinal obstruction. During the period before and after surgery, the clinical treatment of patients is fasting, and parenteral nutrition becomes extremely important at this time. Xu Quanhong. In his article "Application of Nutritional Support Therapy in Early Postoperative Inflammatory Intestinal Obstruction", it is discussed that the trauma caused by surgery will cause the decline of glucose tolerance, and the production of urea, the decomposition of protein, and the removal of fat will increase, which can cause Choose to add an appropriate amount of N and reduce the supply of heat. The corresponding nutritional support strategy is customized according to the degree of disease development. Total parenteral nutrition support should be actively implemented in the early stage after surgery, 1-3 days later, according to the current situation of the patient, switch to the mode of enteral nutrition. It is also necessary to supplement plasma and human albumin. These supplements can reduce the edema of the intestinal wall and increase the osmotic concentration of the body's plasma, thereby accelerating the recovery of gastrointestinal motility.

When the obstruction occurs, the bacteria in the obstructed intestinal lumen will multiply rapidly, and the infection probability of the obstructed patient will be greatly increased. At the same time, the blood circulation of the intestinal wall will also be blocked, and the barrier function of the intestinal mucosa will be damaged, resulting in the translocation of bacteria. Infect. Choose reasonable antibiotics to reduce the chance of infection in a timely and effective manner.

Select the corresponding drug treatment according to the symptoms; for the drug treatment of patients with intestinal obstruction, gastrointestinal motility drugs can be used to enhance the peristalsis of the gastrointestinal tract; Reduce the inflammatory edema of the patient's intestinal lumen and reduce the expansion caused by gastrointestinal fluids.

4.2 Surgical Treatment

A very important measure for the treatment of intestinal obstruction is surgery. The purpose of our surgical treatment is to help patients eliminate obstruction and remove the cause of obstruction. If after 24-48 hours of conservative treatment, the patient's symptoms are not improved or relieved, or there are clinical symptoms such as pain, vomiting, distention, stop gas and defecation, weakened or disappeared bowel sounds, and peritoneal irritation signs, the urgent need for surgical treatment [14]. The traditional surgical methods include adhesion lysis, enterotomy to remove foreign bodies, intussusception, volvulus, reduction and other operations that simply relieve obstruction; for tumors, inflammatory strictures, local inactivation of intestinal loops and Necrotic intestinal resection and anastomosis; intestinal short-circuit anastomosis; enterostomy, intestinal externalization and other surgical procedures.

The clinical application of laparoscopic surgery is now more than that of traditional laparotomy, which has the characteristics of small incision, less bleeding, postoperative reaction, inflammation, and pain and other complications. The mechanism of postoperative intestinal obstruction is mostly caused by inflammatory reactions and neural mechanisms caused by various reasons during the operation. Only a small amount of scattered poke scars remained after the operation, which was much smaller than the surgical scars caused by laparotomy. At the same time, the minimal trauma it brings also reduces the use of postoperative opioid analgesics [15].

Some studies have also shown [16] that different operation times have different postoperative curative effects for patients with intestinal obstruction. In a comparative study on the efficacy of emergency surgery and elective surgery in patients with intestinal obstruction, emergency surgery and staged surgery increased the patient's hospital stay, the cost of in - hospital burden, and the risk of multiple surgeries, resulting in patients' immune function. Being suppressed and causing a relatively strong stress response is not conducive to the recovery of patients after surgery; it has also been clinically proven that non-emergency patients have a lower incidence of postoperative complications.

At the same time, in addition to the above treatment methods, the application of TCM syndrome differentiation, acupuncture and massage can also be a good part of the ERAS concept. For problems such as weak circulation of qi and blood, stagnation of qi and blood stasis, and stagnation of qi in the fu- organs caused by the operation, the principles of removing blood stasis and promoting blood circulation, and smoothing the qi mechanism, acupuncture and moxibustion can be selected according to the above dialectical points for treatment. The gastrointestinal tract can be attributed to the foot yangming, hand yangming and hand sun meridians. The operation of the abdomen leads to the blockage of the stomach meridian, and the circulation of the qi around the meridian is replenished. Acupuncture and other traditional Chinese medicine methods are used to prevent and treat patients in the perioperative period [17].

5. Quoting Two Experimental Studies to Discuss the Effect of Eras Theory on the Recovery and Prognosis of Patients with Intestinal Obstruction

In recent years, the concept of rapid recovery ERAS has been widely implemented in postoperative patients with intestinal obstruction, and achieved ideal clinical results. There is such an experimental study. Through comparison, the observation group showed that the recovery time of postoperative bowel movements, the morning and evening when the patients were able to get out of bed after the operation, the time they could eat, and the time required for hospitalization were all better than those of the control group ($P < 0.05$), which verifies that the ERAS concept has positive significance for various postoperative recovery indicators of patients [18].

For postoperative nutritional support, there are also experiments that apply the ERAS concept of nursing. Before surgery, NRS 2002 is used to screen to assess whether the patient's nutritional status is good, and to actively use nutritional support to intervene in the early stage, so as to avoid previous preoperative enema A series of problems such as body fluid loss and bacterial flora disorder caused by intestinal preparations such as fasting, fasting, etc., help patients with obstruction to quickly recover gastrointestinal function after surgery. Enteral nutritional support such as feeding in the early postoperative period can effectively prevent complications such as abdominal distention and pain caused by delayed intestinal peristalsis due to unrecovered intestinal peristalsis function and slow peristalsis. After the operation, after giving nutritional support, the NRS 2002 screening was used for the patients again, the nutritional level was evaluated, and the appropriate diet plan was given respectively, so as to control the postoperative complication rate of the patient. The results of the experiment showed that the nutritional index levels of the study group

were higher than those of the control group on the 7th day after operation ($P < 0.05$) ; the incidence of complications was also lower than that of the control group ($P < 0.05$). The surgical concept provides enteral nutrition support, avoids the incidence of complications, and promotes the speed of recovery of patients. [19]

6. Conclusion

To sum up, under the systematic and holistic treatment ideas of the concept of rapid postoperative recovery, combined with our current and traditional treatment methods, we should select the best, improve, and organize them into a set that is suitable for patients, adapts to the disease, prevents and promotes recovery, The system of increasing the curative effect and other aspects is that patients can quickly recover their health in a comfortable and good way and reduce unnecessary complications and postoperative discomfort under the intervention of various reasons such as physical factors and psychological factors during the process of hospitalization and treatment.

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