



PERITONITIS IN NEWBORNS: SYMPTOMS OF THE DISEASE, METHODS OF DIAGNOSIS AND TREATMENT

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Article history:	Abstract:
Received: March 1 st 2022 Accepted: April 1 st 2022 Published: May 8 th 2022	Peritonitis is a severe inflammatory disease that affects the inner wall of the abdominal cavity. In children, it progresses faster than in adults, and often turns into common forms and provokes the appearance of complications. In the absence of proper treatment, after three days it can lead to the development of sepsis. Peritonitis is an inflammation of the peritoneum, the tissue that lines the inner wall of the abdomen and covers and supports most of your abdominal organs. Peritonitis is usually caused by infection from bacteria or fungi.

Keywords: Peritonitis, Children, Newborn, Type Of Treatments.

INTRODUCTION.

Peritoneal inflammation in newborn children is one of the most formidable diseases, often leading to death.

The causes causing peritoneal inflammation in this category of patients are polyetiological. Left untreated, peritonitis can rapidly spread into the blood (sepsis) and to other organs, resulting in multiple organ failure and death. So if you develop any of the symptoms of peritonitis -- the most common of which is severe abdominal pain -- it's essential to seek prompt medical evaluation and treatment that can prevent potentially fatal complications. A distinction is made between primary and secondary peritonitis. In primary peritonitis, infection of the abdominal cavity occurs by hematogenous and lymphogenous routes or in the presence of inflammation of the umbilical vessels. Secondary peritonitis is caused by inflammatory diseases of the abdominal cavity or retroperitoneal space, perforation of the intestinal wall against the background of ulcerative necrotic enterocolitis (NEC) or congenital intestinal obstruction as well as postoperative complications. In addition, secondary peritonitis can be caused by umbilical hernia complicated by ruptured or infected envelopes, gangrene of the intestine in a pinched inguinal hernia, etc.

OBJECTIVE:

Objective diagnosis and treatment of perforative peritonitis and organ dysfunction in JNEC and gastric perforation (GP) in neonates.

MATERIALS AND METHODS:

A retrospective, observational, cohort study of 46 newborns, who were admitted and received intensive

care in the neonatal intensive care unit of AOMPDB at the age of 5-14 days of life during the period 2020-2021.

Results of the study. Necrosis and perforation of the small intestine and secondary peritonitis occurred in 26 (56,5%) neonates, in the colon - in 13% of patients, and in the stomach wall - in 12 (26,1%) cases. Lethal outcome occurred in 32 neonates of the main group. Postoperative mortality was 69.6%. Lethality predominated in newborns with multiple perforations of the small intestine.

In 4 (8.7%) examined neonates with perforative peritonitis, laparocentesis with peritoneal drainage (PD) was an indication for emergency as a temporary intra-abdominal hypertension syndrome therapy. Portal vein pneumatization and/or pneumoperitoneum with multiple organ failure of 2 or more organs (respiratory and cardiovascular system and GI organ dysfunction).

In PD, in neonates (n=4) the mortality rate in the early postoperative period was 25%, and in the late period - 75%. In children who initially underwent median laparotomy, early postoperative mortality was 11% and 78.1% in the late period, given a larger number in the neonatal group (n=28) and a single more radical surgical intervention.

In the postoperative period, infusion therapy (IT) aimed at the correction of gastrointestinal (GI) and respiratory dysfunction, as well as antibacterial therapy was administered. In nasogastric decompression with residual volume of gastric contents over 6 ml/kg, the administration of metoclopramide, proserine was recommended for 3±1 days after surgery, until restoration of motor and evacuatory function of the GIT (decrease of abdominal bloating, restoration of bowel peristalsis, gas evacuation). Pain relief by one-stage caudal block with further use of analgin solution.



Infusion therapy included restrictive strategy (body weight gain not more than 1% per day), with early enteral administration of saline solutions (1 ml/kg/h), starting from the second day after surgery. Enteral nutrition was started from 10 days after surgery. The above-mentioned tactics of intensive therapy made it possible to reduce the period of invasive AVI, to resume the motor and evacuatory function of the gastrointestinal tract on the 3rd day postoperative period.

Thus, on the 3rd day after surgery compared with the preoperative period, a decrease of the total leukocyte count to $12.0 \pm 1.1 \times 10^9/l$, decrease of myelocyte number to $2.1 \pm 0.4\%$, rod-shaped leukocytes to $5.4 \pm 0.6\%$, CRP to 12.0 ± 3.3 mg/l ($P < 0.05$) was registered. The pSOFA score was 1.4 ± 0.4 , i.e. there was an organ dysfunction of the 1st system of patients - GIT, and the probability of lethal outcome was within the range of 22%.

On the 7th day there was a further decrease in the studied laboratory indices, as well as stabilization of the clinical homeostasis indices in the newborn infants. The neonatal pSOFA score and the likelihood of adverse outcome were similar to the previous stage of the study.

Short-term mortality in the examined newborns was 6.3%. Long-term mortality - 56,3%, was caused by the development of late complications of JNEC - adhesive intestinal obstruction (organ dysfunction of the GI tract), which required repeated surgical interventions and determined thanatogenesis in cases of long-term mortality.

Diagnosis of NSEK, gastric perforation is based on widely known clinical and laboratory parameters with subjective interpretation due to the polyetiology of NSEK and GI, and the fact that newborns, as a rule, receive prophylactic antibacterial therapy for somatic pathology.

CONCLUSIONS:

The performed study allowed to reveal diagnostic criteria with high specificity and sensitivity in perforative peritonitis such as: intestinal pneumatosis, multiple air/fluid levels, pneumoperitoneum as well as to state that the main links of multiple organ failure in this contingent of patients are GIT and respiratory system dysfunction.

We would like to note, that in the widely used scales of assessment and prognosis of the condition severity, including sepsis in neonates, the criteria of GIT dysfunction and their grading are absent. The choice of antimicrobial therapy should be based on the fact that neonates have already received empirical

antibiotic therapy, and taking into account the localization of the main infectious agent in patients with JNEC - GI. Restrictive strategy of intensive therapy in neonates with perforative peritonitis, based on ESICM recommendations for abdominal problems (2012), reduced short-term mortality to 6.3%.

The lack of difference in short-term mortality in patients depending on the nature of surgery (laparotomy), allowed us to conclude that the choice of surgical intervention in neonates with perforative peritonitis, should be based on the overall risk, taking into account the nature (urgency) of surgery according to the CEPOD scale (confidential inquiry of perioperative death cases). Midline laparotomy is the main method of surgical treatment in neonates with stage II-III JNEC, PJ in a Level III medical facility.

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