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Prevention and Surgical Treatment of Neonatal Necrotizing Enterocolitis

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Abstract: In the past few decades, the continuous development of early neonatal monitoring and treatment technology has improved the early survival rate of premature babies and babies born with low weight and high quality. However, the incidence of neonatal necrotizing enterocolitis has not decline. Therefore, it is necessary to actively carry out prevention and surgical treatment based on neonatal necrotizing enterocolitis. The purpose of this article is to discuss the prevention and surgical treatment of neonatal necrotizing enterocolitis. 140 neonates with neonates admitted from October 2013 to October 2019 were selected, and NEC patients were divided into control and in the experimental group, preventive and surgical treatments were performed to observe their effects. The results of the study show that the control group defaults to a group with a fasting time of 0 days. The number of people is 70. There are 60 cases of infants with feeding intolerance, accounting for 85.7%, and the experimental components are 1-7. 8-14, 15-21 three cases, a group of 1-7 days of fasting time, the number of 27 people, feeding intolerance of 11 cases of newborns, accounting for 40.7%. It can be seen that the prevention and surgical treatment based on neonatal necrotizing enterocolitis is of great significance to the health of newborns.

1. Introduction

Neonatal necrotizing enterocolitis is mainly a common acute gastrointestinal infection emergency during neonatal growth. It mainly occurs in premature infants and children with high birth temperature and weight. Clinically, pediatric bloating, vomiting, abdominal bay and increased blood in the stool are the main clinical manifestations, and also can be combined with pediatric complete apnea, tachycardia, low birth temperature, shock. In severe cases, there may be small intestinal perforation, intestinal colossal necrosis, and disseminated small intestinal blood vessels Mucosal coagulation, multiple organ failure, or even death. The abdominal wall can be seen with

gastrointestinal wall gas accumulation, dilatation, obstruction, gastrointestinal gas accumulation between the intestinal walls, or gas accumulation in the upper pylorus or inferior vein. The person may even occur in the abdomen.

With the continuous development of modern medical and health technologies, especially the widespread application and popularization of modern respiratory medicine technology, the overall survival rate of preterm infants has greatly improved [1]. But due to neonates suffering from necrotizing enteritis and colitis infants the morbidity and infant mortality have not improved significantly. Related clinical complications include perforation of large and small intestine, short bowel stenosis syndrome, intestinal stenosis, etc. An important risk factor for the brain development and neurological function of premature children [2]. It can be seen that neonates with necrotizing enteritis and colitis are dangerously early and have a high mortality rate, which is one of the main causes of early death that may cause many newborns, especially some preterm infants, and seriously affect the prognosis of their babies [3].

Patil believes that the high-risk factors of necrotizing enterocolitis in neonates are premature rupture of membranes, pre-natal eclampsia, gestational diabetes, congenital heart disease, perinatal asphyxia, polycythemia, respiratory failure, blood exchange therapy and suggests that hypoxia and perinatal infection are important factors of influence [4]. Miriam found that breastfeeding reduced the incidence rate and mortality of neonatal necrotizing enterocolitis in clinical trials. It suggested that breast milk should be the first choice for feeding, especially for premature infants with high risk factors. The amount of milk should be increased slowly, and should be observed [5]. Gomes found in animal experiments that in the gut, milk feeding is more intensive than breast-feeding in bacterial colonization, higher IL-1 levels and more NEC like lesions [6]. Krediet study found that the presence of apnea, increased milk volume and co infection were the three most risk factors for the incidence of premature infants, among which the effect of improper feeding on NEC was mainly due to the choice of formula feeding and fasting time. It is considered that adding milk quickly can damage the intestinal mucosa of newborn, which is an important cause of occurrence [7]. Li reported that NEC usually occurs on the day after birth, and the age of onset is opposite to the birth weight and age. The smaller the gestational age is, the lighter the birth weight is, and the later the age of onset is. In this stage, in order to ensure the blood supply of the heart and brain and other major organs, the intestinal tissue is temporarily in a relatively hypoxic-ischemic state, which is easy to occur [8]. Steppberger's survival rate of neonates with necrotizing enterocolitis was significantly higher than that of infants without necrotizing enterocolitis [9].

Compared with the previous NEC literature, the innovative content of this article is roughly divided into the following points: the first point is to use multi-center clinical case retrospective analysis, multi-factor regression analysis of related factors, to explore the influencing factors of NEC pathogenesis provide intervention early. The second point is to clarify the milking time. The milking time is intrinsically related to the occurrence of NEC. This factor is often ignored in previous literature. The third point is that the speed of feeding milk is too fast to exceed 20ml / (KGD). Each newborn should formulate a feeding plan in a targeted manner, depending on its general state and tolerance to feeding.

2. Pathogenesis of NEC

The exact etiology and pathogenesis of NEC have not been fully elucidated. At present, it is generally believed that this NEC disease is caused by the final digestive response of the immature gastrointestinal tract to a variety of physiological factors, and the combination of multiple factors [10]. The risk factors of NEC induced by pregnancy are not discussed in medical monographs related to neonatal diseases. The main factors include: pregnancy vascular factors, such as

pregnancy fetal hypertension vascular disease, pregnancy acute diabetes, amniotic membrane rupture and fetal chorioamnionitis. Factors of asphyxia during pregnancy and childbirth, such as perinatal asphyxia; heart diseases of newborns during pregnancy, such as premature pregnancy, respiratory distress syndrome, cyanotic congenital heart disease, respiratory failure, failure to close the arterial varicose catheter, chronic infantile anemia, congenital malformation of gastrointestinal tract catheter, thrombocytopenia, polycythemia, hypoglycemia, and hyponormal factors. Such as body temperature, infection and severe shock, such as milk and milk feeding, improper feeding, including rapid emulsion growth, fast penetration and high concentration of formula milk and milk feeding, are widely recognized by pediatricians in China. For example, NEC is often considered as the result of the combined interaction of two or more risk factors. As shown in Figure 1, NEC mainly occurs due to the following factors.

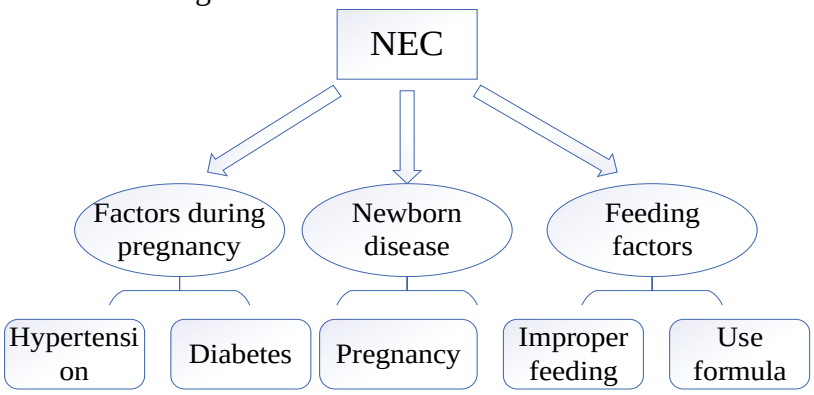

Figure 1. NEC occurrence factors

Premature birth has been clinically confirmed as a single clinical risk factor for NEC. For premature infants with a gestational age of more than 24 weeks, the gestational age increases by 1 week every year, and the clinical incidence of NEC will decrease by 1% [11]. The results of multiple clinical studies confirm the positive and negative correlation between the weight of the baby at birth and the index NEC. Premature infants and low-birth-weight infants lack intestinal protection function. Due to immature development, slow intestinal bacteria peristalsis, and long food fermentation residence time, resulting in a good environment for intestinal bacterial growth, prone to long-term food fermentation, intestinal Bacterial infections, cause a large number of germs to multiply; the immature infants' intestinal tract and mucosal hypoxic barrier have relatively small protective functions, and full-term infants are also more imperfect. Increased, prone to severe intestinal inflammation and allergic reactions; in addition, premature infants with low body resistance is also a good inducer of intestinal infections; premature infants in children are prone to a series of infection complications, such as some newborns respiratory distress hernia syndrome, sepsis, and failure to close the arterial drainage catheter. Finally, premature infants are prone to severe respiratory asphyxia immediately after birth, and the acute bowel inflammation and hypoxic mucosal damage caused by it will also be Forcing bacterial antibodies in the body to have more opportunities to invade by itself. This makes the birth weight of premature and low birth infants a high-risk risk factor for fetal NEC.

Bacterial infection and intestinal inflammation are usually the main causes of the intestinal septicemia, intestinal septicemia, difficulty in cultivating stool and expelling difficult clostridia are closely related to the serious cause of large intestine NEC. Barrier nervous system directly invades the large intestinal mucosa epithelium, and the intestinal endotoxin is related to the damage of the large intestine mucosa, causing the serious occurrence of large intestine NEC. The toxic bacteria cultivated are mostly klebsiella coli, pseudomonas aeruginosa, clostridium difficile, and various

toxic Staphylococcus epidermidis. Kinds of harmful bacteria in the intestine, which together with E-coli virus cause a large amount of differentiation and proliferation of other pathogenic bacteria in the human intestine, which directly leads to the occurrence of NEC diseases.

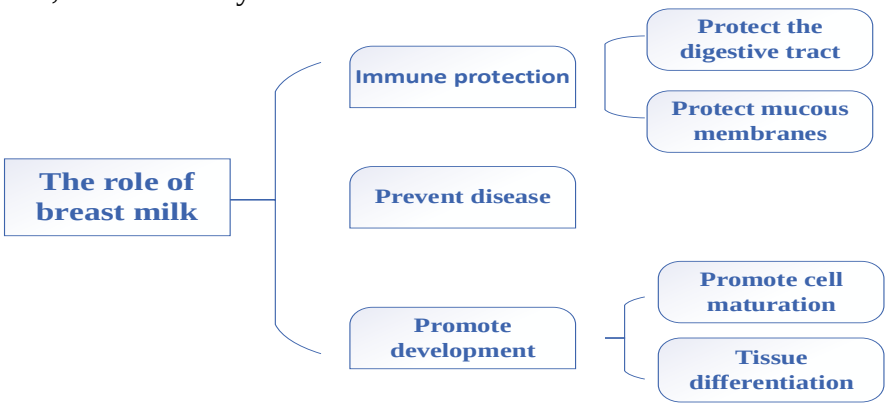

Figure 2. The role of breast milk

The internal osmotic pressure load of cow milk is high, and the internal osmotic voltage of breast milk is much lower than that of pure milk of breast milk formula, which can greatly reduce the internal osmotic pressure and load of breast milk food, thereby greatly reducing the clinical incidence and risk of infant NEC, so for the application breast milk formula pure milk breastfeeding early neonates, the clinical incidence of NEC is much higher than breastfeeding. Breast milk (especially freshly produced breast milk) mainly contains nutrients that are indispensable for other dairy animal milk and milk, such as long-chain polyunsaturated fatty acids, digestible fat proteins, and various human immunosuppressive factors such as activated platelet enzymes. And acetate hydrolase, which play an important role in infants' anti-infection and anti-inflammation, inhibit infant's platelet activation factor, regulate infant's immunity, protect infant's digestive tract and intestinal mucosa, and at the same time promote infant's gastrointestinal tract cell development and immune system protection Important role. Breast milk contains a variety of active stem cell reductases that also have the potential to inhibit differentiated cells, which can be used to ensure the long-term health of premature infants. Moreover, breast milk can not only effectively prevent infantile bronchial and cardiopulmonary dysplasia, nervous system developmental delay and other health problems. It is the best preventive milk product for our disease prevention NEC, and it should be used more often. As shown in Figure 2, breast milk has the following effects.

3. NEC Prevention

The epidemic of NEC should pay special attention to time isolation. For premature newborns and other premature infants who are directly, indirectly or in contact, you should check every day whether the bloating phenomenon may occur and the nature of the stool [12]. The staff should pay special attention to the normal brushing of the doctor's hands. The specific operations can be prevented from the following main aspects.

Probiotics mainly inhibit the host's natural bacterial defense mechanism, promote the normal bacterial overgrowth of the host's intestine, prevent the excessive growth of pathogenic bacteria in the intestine, and also maintain the diversity of the formation of normal intestinal microbiota. In clinical studies of children with NEC disease, it has been found that the use of probiotics administered enterally can effectively reduce the morbidity and mortality of children with NEC in a variety of serious diseases. At present, more and more animal laboratories and animal clinical medical tests have confirmed the health care effect of probiotics, especially for NEC disease

prevention.

The biological activity of EGF and Hb-EGF present in the gastrointestinal tract, amniotic fluid, breast milk, saliva is expressed by binding to the EGF receptor (EGF-R). Under physiological conditions, EGF plays an important role in the proliferation and differentiation of intestinal epithelium; under pathological conditions, EGF protects the injured epithelium and also repairs the damaged mucosa. The onset of NEC may be related to the decrease of intestinal EGF and the increase of EGF-R expression. The proportion of EGF in saliva and bile serum concentrations in children in the NEC group was significantly lower than that in the control group.

Oral administration of human immune cell globulin can effectively protect the mucosa of the human intestine, resist the frequent invasion of various intestinal pathogenic microorganisms, and avoid or greatly reduce the cascade immune response in intestinal inflammation. Theoretically, it is widely believed that oral administration can effectively reduce the incidence of inflammation in SIGA and NEC. Various other immunologically active chemicals, including large intestine SIGA, T-globules can also promote the differentiation and settlement of flora in the human intestine, inhibit the displacement of harmful flora, and stimulate the growth of beneficial flora. To a certain extent, it can also effectively protect the intestinal tract of immature bacteria and prevent the occurrence of intestinal NEC disease. Some domestic scholars have repeatedly proposed that oral administration of hormones such as IGA, IGE and other hormones in infant formula milk can effectively prevent the occurrence of NEC diseases in infants, but relevant medical researchers in China have found that oral milk in premature infants and early low-quality high-quality infants. The addition of IA or intravenous infusion of gamma globulin after milk does not significantly reduce the incidence of infant NEC, and the long-term use of a large number of high doses of gamma globulin may lead to a significant increase in the incidence of infant NEC.

Polyunsaturated fatty acid is a long-chain organic fatty acid containing multiple unsaturated double bonds. Many experimental animals and clinical medical trials have suggested that if PUFA is added to the formulated milk powder, it can effectively reduce the clinical incidence of NEC, but the specific mechanism of its pharmacological effect is not clear. This is likely to be inhibited by inhibiting PUFA. Gastrointestinal mucosal epithelial leukocytes inhibit toll-like activator inhibitory receptor 4 and platelet activator inhibitory receptor inhibit the cell expression function of this gene.

Arginine and other glutamine acids can help maintain the mucosal regeneration function of the human gastrointestinal tract. Glutamine is an essential nutrient that promotes the growth and proliferation of mucosal villi cells of the gastrointestinal tract wall, which can effectively induce the maturation of villi cells remaining on the intestinal wall and maintain the integrity of the normal intestinal and mucosal barrier; Under the catalysis of various enzymes, it can increase the thickness of the inner wall of the mucosa and the number of small intestinal mucosa villi cells, which can effectively maintain the normal intestinal flora activity ratio, thereby effectively reducing the migration of bacteria and toxins remaining in the intestine bit. As shown in Figure 3, the prevention of NEC can be carried out from the following aspects.

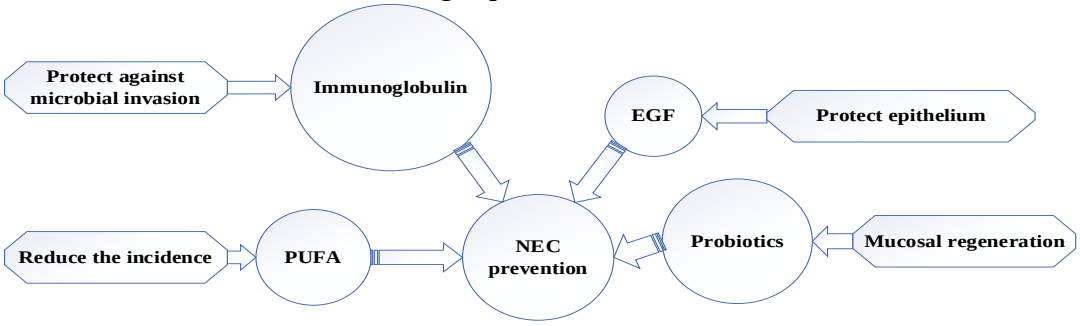

Figure 3. NEC precautions

Severe NEC is often accompanied by a variety of systemic inflammatory adverse reactions and syndromes, and the mortality rate is extremely high. The key requirement of its clinical treatment is to correct multiple organ dysfunction, so it is relatively important to support patients with symptomatic medication. Matters needing attention to maintain vascular blood flow perfusion, fluid circulation resuscitation and improve vascular activity. The drug can improve the blood circulation function of various vascular organs, the support of the respiratory tract, a variety of vascular auxiliary drugs for ventilation and even various mechanical assistance can be selected as appropriate. If necessary, can also infusion of various red blood cells and heart suspension, plasma or platelet supplements and other blood products, while paying attention to correct blood supply, electrolyte disorders and acid-base balance disorders, anti-shock and control DIC.In addition to checking the four basic normal vital physiological signs of body temperature, pulse, blood pressure, and breathing, special attention should also be paid to the analysis of blood glucose, blood gas changes, electrolyte metabolism levels and human coagulation system functions of long-term monitors.Patients with severe gastric NEC reduction should regularly perform multiple consecutive gastroscopy X-rays of the abdominal gastroscope, gastroscopy on the left or right side or supine position in order to find gastrointestinal perforation in time, which is important for the optimal timing of gastrointestinal surgical treatment the basis of clinical diagnosis.

4. Prevention and Treatment of NEC Patients

4.1. Experiment Preparation

(1) Experimental subjects

The 140 NEC children who were admitted to the neonatal department from October 2013 to October 2019 were diagnosed in accordance with the diagnostic criteria of "Practical Neon Ology" and bell staging. The clinical signs of abdominal distension, vomiting, and bloody stools, X-ray abdominal on plain film, abnormal intestinal inflation, intestinal obstruction, or gas accumulation in the intestinal wall suggest NEC. If there is gas accumulation in the intestinal wall and gas accumulation in the portal vein of the liver, then NEC is diagnosed. Necrotizing enterocolitis and bell stages are shown in Table 1.

Table 1. NEC and Bell installment

Installment type	NEC	Bloating	Vomiting	Bloody stool
Phase 1	Suspected	Mild	Mild	Mild
Phase 2	Confirmed	Moderate	Moderate	Moderate
Phase 3	Severe	Obvious	Obvious	Obvious

Stage 1 (suspected NEC): gastroesophageal retraction, abdominal distension, positive bloody stool or rectal occult blood test, normal X-ray film or examination suggest mild acute abdominal distension, unstable body temperature, complete apnea, and bradycardia. Stage 2 (confirmed NEC): The patient has obvious clinical manifestations of stage 1, combined with mild or severe to moderate systemic acidosis and vomiting symptoms, the resonance sound of the intestinal wall completely disappears, the abdomen is slightly tender, and there is local gas or acute outpatient clinic and gas accumulation in the intestinal wall of the vein, metabolic acidosis or acute platelet content decline. Stage 3 (severe NEC): The patient has obvious clinical manifestations of stage 2, with severe systemic acidosis but severe symptoms, with significant abdominal distension, ascites, hypotension, metabolic acidosis, and severe respiratory acidosis, DIC , Pneumoperitoneum.

(2) Determine the group

Treatment: after diagnosis, comprehensive treatment including fasting, intravenous infusion, antibiotic application, total parenteral nutrition and other symptomatic treatment and intravenous

gamma globulin support, and surgical indications are given for corresponding surgical treatment. The NEC patients were divided into control group and experimental group, and prevention and surgical treatment were performed respectively to observe their effects.

Data processing

In this group, the STATA11.0 statistical software package was used for the two-sample counting data using the X2 (chi-square) test, and the two-sample measurement data was tested using the t test; then the logistic regression analysis was used to analyze the risk of affecting the treatment and prognosis factor analysis, $p<0.05$ considered the difference to be statistically significant.

4.2. Experimental Content

(1) Index observation

The relevant clinical investigation data of two groups of children were collected by multiple retrospective clinical investigation forms, including: general birth conditions of each group of children: gestational age, gender, birth year and weight; delivery conditions during pregnancy: whether the children had type I hypertension, congenital heart disease during pregnancy, type II diabetes during pregnancy, premature rupture of membranes, and intrauterine distress. Whether all kinds of glucocorticoids need to be used in prenatal examination, and whether other antibiotics need to be used in prenatal examination; Delivery at birth: whether there is delivery mode, fetal asphyxia, amniotic fluid flow pollution, placenta development abnormality; milk feeding mode: when the baby starts milk, two ways of feeding (including breast feeding, artificial mixed feeding), micro food feeding. Normal milk and a small amount of mixed feeding and other diseases related to the age and symptoms of the disease, such as whether there are children's respiratory distress asthma syndrome (RDS), apnea, pneumonia, respiratory failure, PDA, shock, acute hypoglycemia of newborn, acute sepsis of newborn, poor or tolerant milk feeding of newborn, diffuse children with DIC, neonatal acute hyperbilirubinemia, NEC's clinical manifestations and related treatment measures. Treatment and prevention measures of clinical symptoms related to NEC before onset: whether the case needs to apply strong antibiotics, blood transfusion, aminophylline hydrochloride, respiratory system support agent CPAP, mechanical ozone ventilation, probiotics: the case applies triple active bacilli capsule. A total of 35 human observation experiments.

(2) Treatment and prognosis

After the diagnosis of the disease is confirmed from the clinic, fasting, gastrointestinal peristaltic decompression should be performed immediately, and an appropriate amount of heat card should be given to the body. Fasting duration of more than 10 days can be supplemented with drugs intravenously, depending on the severity of bacterial infection. Appropriate selection of sensitive drugs and antibiotics, if necessary, can be given a small amount of blood transfusion, strengthen the body's immunity, symptomatic treatment to support drug treatment, patients with other surgical methods designated signs, please consult other surgeons after treatment with other surgical methods. Under normal circumstances, there is a significant improvement after milk, abdominal distension obviously disappears, stools still appear occult blood or turn cloudy, if there is no obvious gastric retention, you can try to change the glucose water first, and if there is no severe abdominal distension or vomiting, you can change it switch to formula milk or breast milk, and gradually resume to speed up breastfeeding. If severe abdominal distension and vomiting occur again after milk, stop milking and fasting again.

Improve the patient's systemic coagulation as much as possible before surgery, such as strengthening respiratory system management, treating acute shock, applying broad-spectrum coagulation antibiotics, correcting pernicious anemia, and improving systemic coagulation system functions in a timely manner. At the minimum urinary output, the blood flow is 1ml / kg per hour to

maintain a low blood pressure. When the pneumoperitoneum is often accompanied by pain and abdominal distension is obvious, it can also be drawn by the bedside urinary catheter. Preoperative physical recovery is not suitable for more than 1-2 hours. After 3-4 hours of active surgical preparation, surgical intervention should be considered in time.

(3) NEC's auxiliary inspection

If the patient's abdominal endoscopic x-ray examination shows no obvious positive signs, it should be followed up for multiple radiographs at regular intervals, and should be reviewed once within 48-72 hours from the beginning of the patient's onset or within 6-8 hours. Abnormal leukocytes and reduced platelet count are related to some early neonatal prognostic factors, which are often regarded as important signs of the development of children's disease. The platelet activity level image of the dynamic blood observer can monitor the continuous progress of various diseases at any time, so as to provide an optimal time for patients to undergo surgery. Whether stool is a routine medical examination has always been an important inspection indicator for disease diagnosis. Relevant clinical research results show that the first infusion of concentrated red blood cells is related to the difference between NEC before and after diagnosis after combined antibiotic treatment in hospital and bacterial infections. Related to a significant difference between the former and NEC. It is suggested that increasing the infusion dose of concentrate in red blood cells may only be an independent risk factor for the occurrence of NEC disease.

5. Prevention and Treatment Effect of NEC Patients

5.1. Analysis of the Preventive Effect of Neonatal Necrotizing Enterocolitis

The mortality of each clinical stage is different. The performance of children in stage 1 is mild. Compared with normal newborns, there is no significant specificity. It should be closely observed. The second stage is the diagnosis period. The clinical manifestations and auxiliary examinations are specific. The rate is high, and the third stage is a severe stage. Intestinal perforation, peritonitis, and other serious comorbidities often occur, and the mortality rate is extremely high. As shown in Table 2, the standard Bell stage was used to stage 140 cases, and the NEC cure rate of different Bell stages was evaluated.

Table 2. NEC cure rate

Group	Number of cases	Proportion of premature babies	Cure rate	Mortality rate
Phase 1(%)	68	50 (73.28%)	60 (89.1%)	8 (10.9%)
Phase 2(%)	56	38 (67.81%)	46 (82.3%)	10 (17.7%)
Phase 3(%)	16	12 (74.86%)	8 (49.7%)	8 (50.3%)

As shown in Table 2, the number of children in stage 1 is 68, the proportion of newborns has reached 73.28%, the number of cured is 60, the cure rate has reached 89.1%, the number of deaths is 8, and the mortality rate is 10.9%. The number of children in stage 2 was 56, the proportion of newborns reached 67.81%, the number of patients cured was 46, the cure rate reached 82.3%, the number of deaths was 10, and the mortality rate was 17.7%; the number of children in stage 3. There were 16 cases, the proportion of newborns reached 74.86%, the number of cured persons was 8 and the cure rate reached 49.7%, the number of deaths was 8 and the mortality rate was 50.3%; there was no significant difference in the proportion of premature infants in different periods. However, the cure rate of stage 1 and stage 2 was significantly higher than that of stage 3, and there was no significant difference between stage 1 and stage 2.

Children with NEC had abnormal white blood cell results in 26% and platelet abnormal results in 34%. Abnormal CRP results accounted for 67% of NEC patients. Prompt infection plays an important role. It is necessary to pay close attention to the abdomen and use antibiotics in time if

necessary. It was also found that the incidence of leukocyte abnormalities and thrombocytopenia was higher in the control group than in the cured group. It is suggested that children who have abnormal white blood cells and thrombocytopenia should arouse our attention and vigilance and actively treat them. At the same time, because routine blood tests are easy and simple, dynamic monitoring of changes in white blood cells and platelets is helpful to judge the condition.

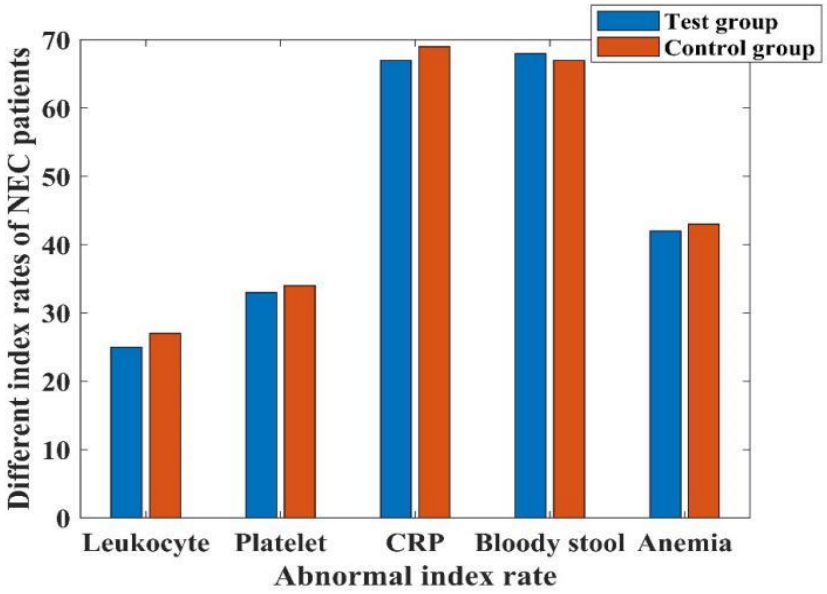

Figure 4. NEC blood routine test

As shown in Figure 4, the NEC patients in the control group had abnormal white blood cell results in 25% and platelet abnormal results in 33%. In children with NEC, abnormal CRP results accounted for 67%, bloody stools occurred in 68%, and anemia occurred in 42%. In the experimental group, NEC patients had abnormal white blood cell results in 27% and platelet abnormalities in 34%. Abnormal CRP results accounted for 69% of children with NEC, blood stools were 67%, and anemia was 43%. This shows that whether it is the control group or the experimental group, only if it has NEC disease, its damage to the three types of blood cells has always existed. This can be used as an indicator for the prevention of NEC disease.

In terms of breastfeeding babies, breast milk should be preferred as much as possible, especially those premature babies with high-risk developmental factors, should slowly increase the amount of infant milk, and should pay attention to carefully observe the situation of bloating, vomiting, etc. Many clinical research results have shown that breastfeeding is also a disease that can be effectively prevented, because natural breast milk is also rich in growth factors, colony growth spurs to stimulate growth factors, hormones, and various types of growth and development processes. Nutrients and other biologically active chemicals, their biological activation stimulates the human immune system, enhances a host immune defense mechanism against the invasion of foreign antigens and bacteria by some newborns, and also greatly enhances the baby's immunity against infection ability. Breastfeeding also helps stimulate infant gastrointestinal tract and mucous membrane maturation, reduce bacterial infections and inhibit the shift of harmful intestinal flora, immune system regulation and antibacterial and anti-inflammatory functions, which can be used to help with NEC effective prevention of other diseases.

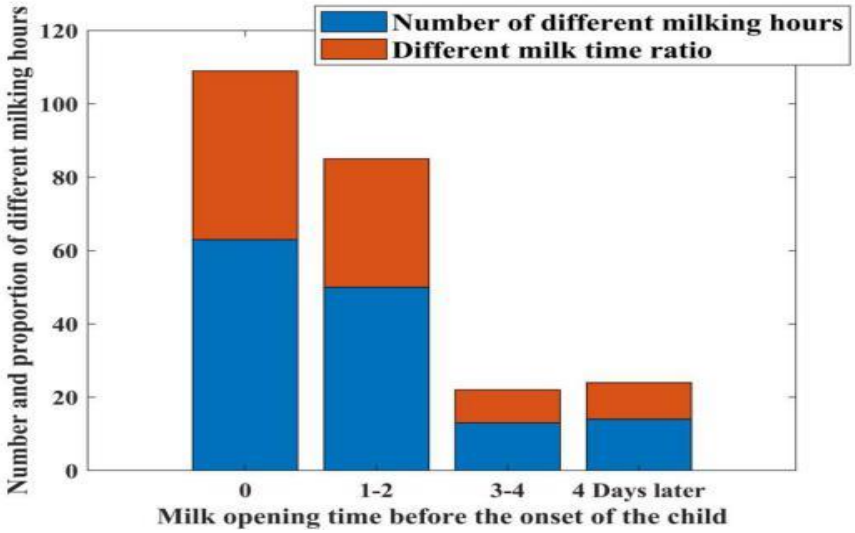

Figure 5. Number of people at different milking times and disease proportion

As shown in Figure 5, the number of children who opened milk before the onset of the day was 63, accounting for 46%, the number of patients who opened milk in 1-2 days was 50, the proportion was 35%, and the number of patients who opened milk after 3-4 days was 13. The proportion is 9%, and the number of milers after 14 days is 14 and the proportion is 10%. Prompt the child to open the milk prematurely before the onset of illness, may lead to the occurrence. Apnea, increased infant formula consumption, and infants with intestinal infections are the three most dangerous factors that cause diseases in preterm infants. Among them, the direct impact of improper feeding on the incidence of neonates is mainly due to the inappropriate feeding of infant formula. The right choice of milk and baby fasting feeding time. Improper feeding (which may include hypertonic dehydration feeding and rapid feeding excessive dehydration feeding), are likely to cause gastritis NEC. Considering the low activity of various food digestion and metabolic enzymes in newborns, if the feeding amount is increased too much and too fast, it may lead to incomplete digestion and absorption of food protein and fat lactose, and food and incomplete food digestion and absorption products are likely to accumulate. In the baby's intestine, it is conducive to the growth of intestinal bacteria

5.2. Analysis of the Therapeutic Effect of Neonatal Necrotizing Enterocolitis

In the treatment of NEC, fasting time often becomes an option. In terms of the choice of fasting time, many previous studies believed that delayed feeding could make children's intestines have more rest time, so that the damaged intestines can heal better. But current studies mostly believe that long-term fasting will reduce the functional adaptation of the gastrointestinal tract and extend the time of parenteral nutrition, and early micro-feeding, especially feeding within 1 week after birth can promote intestinal maturation and enhance feeding tolerance.

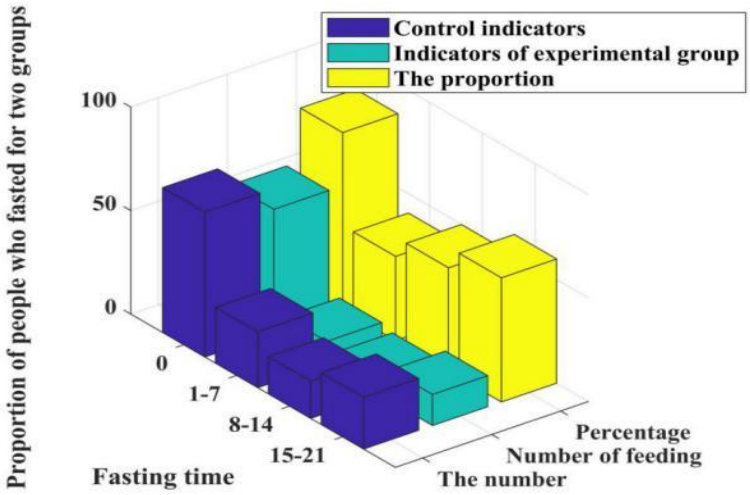

Figure 6. Proportion of effects of fasting time

As shown in Figure 6, the control group defaults to a group with a fasting time of 0 days, the number is 70, the number of infants with feeding intolerance is 60, the proportion is 85.7%, and the experimental component is 1-7, 8-14, 15-21 three cases, a group of 1-7 days of fasting time, the number of 27 people, feeding intolerance of 11 cases of newborns, accounting for 40.7% of the proportion A group of 8-14 days of feeding time, the number of people is 18, there are 9 cases of feeding intolerant newborns, accounting for 50%, a group of 15-21 days of fasting time, the number of people is 25. There are 15 newborns with feeding intolerance, accounting for 60%.

The application of antibiotics plays an important role in the treatment of this disease. Anti-infection treatment should be given as soon as possible after the blood culture samples are collected. The broad-spectrum antibiotics against intestinal bacteria should be applied empirically. The combination of ampicillin and third-generation cephalosporins is currently recommended. If the condition is serious, the anaerobic bacteria should be covered, and metronidazole or clindamycin should be added. When selecting antibiotics, it is necessary to make appropriate adjustments based on the local antibiotic resistance. After the blood culture results are returned, select the sensitive antibiotics for treatment according to the drug sensitivity results.

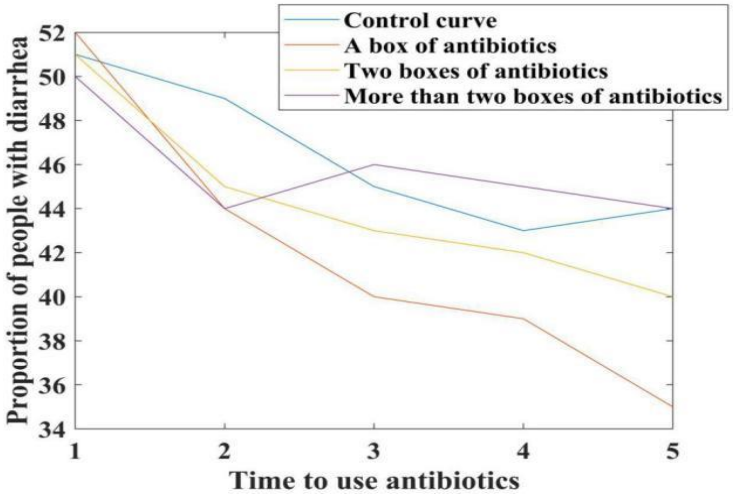

Figure 7. Antibiotic treatment effect

As shown in Figure 7, the control group does not use antibiotics by default, and diarrhea has not

been greatly relieved. The experimental components are three cases: one box of antibiotics, two boxes of antibiotics, and more than two boxes of antibiotics. It can be clearly seen that the use of more than two boxes of antibiotics is similar to the control group, which also shows that NEC may be related to the unreasonable use of antibiotics. Patients with a box of antibiotics are clearly treated for diarrhea, which also shows that antibiotics are effective for NEC treatment, but they cannot be abused, otherwise the effect will be greatly reduced.

6. Conclusion

(1) The research background of this article is the continuous development of early neonatal monitoring and treatment technology in the past few decades. The early survival rate of premature babies and babies born with low weight and high quality has been significantly improved. The incidence of inflammation has not decreased, and in severe cases, there may even be developmental dysfunction of the nervous system of the brain, which is an important risk factor that may cause the brain growth and development of the premature children and the backward development of the nervous system function. Therefore, it is necessary to actively carry out prevention and surgical treatment based on neonatal necrotizing enterocolitis.

(2) The purpose of this article is to discuss the prevention and surgical treatment research based on neonatal necrotizing enterocolitis, and clarify that NEC is the final response of the immature gastrointestinal tract to various factors, and the multi-factor comprehensive effect. The conditions caused by the combination also clarify specific probiotics, EGF and Hb-EGF present in the gastrointestinal tract, amniotic fluid, breast milk, saliva, oral immunoglobulin, polyunsaturated fatty acids, arginine and glutamine Several aspects of amide prevention.

(3) Experimental data shows that the control group defaults to a group with a fasting time of 0 days. The number is 70. The number of infants with feeding intolerance is 60, accounting for 85.7%, and the experimental component is 1-7, 8-14, 15-21 three cases, a group of 1-7 days of fasting time, the number of people is 27, there are 11 cases of feeding intolerant newborns, accounting for 40.7%, A group of 8-14 days of fasting time, the number of people is 18, there are 9 cases of feeding intolerant newborns, accounting for 50%, a group of 15-21 days of fasting time, the number of people is 25. There are 15 cases of infants with feeding intolerance, accounting for 60%.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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