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Necrotizing Enterocolitis (NEC): A Life-Threatening Neonatal Condition

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Introduction

Necrotizing enterocolitis (NEC) is a serious gastrointestinal disease that primarily affects premature and low-birth-weight infants. It is characterized by inflammation and tissue death in the intestines, which can lead to perforation, sepsis, and in severe cases, death. NEC is one of the most common and devastating gastrointestinal emergencies in neonates. Despite advancements in neonatal care, it remains a major cause of morbidity and mortality in neonatal intensive care units (NICUs). Understanding its causes, clinical features, diagnosis, and management is essential to improving outcomes and reducing its burden [1].

Discussion

The exact cause of NEC is not fully understood, but it is believed to result from a combination of factors including intestinal immaturity, abnormal bacterial colonization, and impaired blood flow to the gut. Premature infants are at greatest risk because their intestines are underdeveloped, making them more vulnerable to injury. Additional risk factors include formula feeding (especially in preterm babies), perinatal asphyxia, and infections. Breast milk, on the other hand, has been shown to protect against NEC due to its immune and anti-inflammatory properties [2].

Clinical signs of NEC usually appear within the first few weeks of life. Early symptoms include feeding intolerance, abdominal distension, vomiting, and bloody stools. As the disease progresses, infants may develop lethargy, apnea, unstable body temperature, and signs of sepsis. In severe cases, intestinal perforation may occur, leading to peritonitis and shock. Because symptoms can overlap with other neonatal conditions, careful evaluation is required to confirm the diagnosis [3,4].

Diagnosis of NEC involves a combination of clinical assessment, laboratory findings, and imaging studies. Abdominal X-rays are particularly important, often showing hallmark signs such **as** pneumatosis intestinalis (air within the intestinal wall), portal venous gas, or free air in the abdomen if perforation has occurred [5,6]. Blood tests may reveal metabolic acidosis, low platelet count, or evidence of infection. Early recognition of these findings is critical for timely intervention.

Management of NEC depends on the severity of the disease. In mild to moderate cases, treatment includes bowel rest (stopping feedings), gastric decompression with a nasogastric tube, intravenous fluids, and broad-spectrum antibiotics to control infection. Close monitoring in the NICU is essential. For severe NEC with intestinal perforation or failure to respond to medical therapy, surgical intervention is required to remove the damaged portion of the intestine. Unfortunately, surgery carries significant risks and may lead to long-term complications such as short bowel syndrome, growth delays, or neurodevelopmental impairment [7,8].

Prevention strategies focus on reducing risk factors. Promoting exclusive breastfeeding, minimizing unnecessary antibiotic use, and using probiotics in certain cases have been associated with reduced incidence of NEC. Advances in neonatal nutrition and careful monitoring of high-risk infants also play an important role in prevention [9,10-.

Conclusion

Necrotizing enterocolitis is a life-threatening condition that poses a major challenge in neonatal care. Premature infants are particularly at risk due to their immature intestines and susceptibility to infection. Early recognition of symptoms, prompt diagnosis, and timely management are essential to improving survival and reducing complications. While treatment options include both medical and surgical approaches, prevention—through breastfeeding, careful feeding practices, and supportive neonatal care—remains the most effective strategy. Continued research and awareness are vital to further reduce the impact of NEC and improve outcomes for vulnerable newborns.

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