



PREVALENCE AND OUTCOME OF NECROTIZING ENTEROCOLITIS (NEC) IN VERY LOW BIRTH WEIGHT BABIES (VLBW) IN A TERTIARY CARE HOSPITAL.

Pediatrics

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ABSTRACT

Background: Necrotizing enterocolitis is one of the most common gastrointestinal emergencies in new born infants. It is the major cause of mortality for very low birth weight babies. It is well known that NEC is associated with prematurity and particularly with extremely low birth weight.

Methods: A Prospective observational study was done in NICU of postgraduate department of Pediatrics, GB Pant hospital, GMC Srinagar.

Results: Out of the selected 240 VLBW, about 20 patients developed NEC which is about 8.33% with mortality 30% in patients having NEC as outcome.

KEYWORDS:

Necrotizing enterocolitis, very low birth weight babies, prematurity.

INTRODUCTION:

Necrotizing enterocolitis is defined as intestinal inflammation and injury. It is a multifactorial disease in which the functional immaturity of the intestine plays an important role in its pathogenesis (1),(2). Its pathogenesis is frequently accompanied by intestinal ischemia, colonization of the intestine by pathogenic bacteria or excess protein substrate in intestinal lumen (3). The risk factor includes Pre term birth (SGA) status, hypoxic-ischemic events, early and rapid advancement of enteral feeds, formula feed and bacterial overgrowth (4). It is associated with increasing morbidity and mortality including growth and neurodevelopment impairment. Incidence of NEC declines with increasing gestational age and low gestational age is main single risk factor for NEC (5).

In 2009, the Australian and New Zealand Neonatal Network reported late onset sepsis in 15.7% of infants born at <32 weeks and weighing <1500g (6). It occurs in app 2-5% of infants admitted to the neonatal intensive care units (7). Although incidence varies among centers, recent studies report up to 9000 cases of NEC in the United states every year with a case fatality rate of 15% to 30% (8),(9). Among many causative factors, prematurity and low birth weight is the most consistently recorded risk factors. Orally administered lactobacillus subspecies rhamnosus significantly reduces the intensity of enteric colonization by Candida species among VLBW neonates (10). Feeding with human milk composed with formula milk is probably advantageous for preterm infants and it has been recommended that enteral feeding should be introduced as early as possible to reduce risk of systemic infections including NEC, late onset sepsis and meningitis (11).

Aims and Objective:

The main aim and objective of this study was to determine the prevalence and outcome of NEC in VLBW babies in a tertiary care hospital.

METHODS:

A Prospective observational study was done from April 2014 to April 2015 in NICU of department of Pediatric, GB Pant hospital, GMC Srinagar. After taking consent of parents, patients were enrolled in study. This hospital has a catchment area of both rural and urban populations and is a referral tertiary care hospital.

Inclusion Criteria: All neonates <1500 g admitted in neonatal ICU of GB Pant hospital, Srinagar were included in this study.

Exclusion Criteria: Term babies, Major congenital anomaly, Cyanotic CHD.

RESULTS:

A total number of 240 patients were included in the study that were preterm having gestational age <37 weeks and were very low birth weight having wt<1500 g. Duration of study was one year.

Patients were stratified into 2 groups:

1. VLBW (1000-1500g)
2. ELBW (<1000g).

Table 1. Weight distribution in both groups:

Group	1 – 1.5 kg , n (%) (VLBW)	<1 kg , n(%) (ELBW)
Total	165 (68.75%)	75(31.25%)

Sex distribution of study pop.:

No. of Males: 141

No. of Females:99

Therefore , Out of 240 patients, 20 patients suffered from NEC. Out of these , 20 (8.33%) patients suffered from NEC with mortality rate of 30%.

Table 2:

	NEC	Freq	(%)
	Stage 1	2	10%
NEC Present	Stage 2	15	75%
	Stage 3	3	15%
NEC Absent		220	

Table 3: Outcome of the NEC:

NEC	Discharge	Expired	Referred	Total
Stage 1	2	0	0	2
Stage 2	10	4	1	15
Stage 3	1	2	0	3

DISCUSSION:

NEC continues to be one of the most devastating and unpredictable disease affecting premature infants. It remains a disease of high morbidity and mortality with adverse long term outcomes. In this study, the frequency of NEC is 8.33% as out of the 240 patients, 20 patients develop NEC. In one of the study done by Martin and Walker (12) showed prevalence of NEC is 7-14% of preterm neonates with birth weight in between 500 and 1500 g. In one of the selected series by Lin and Coworker (6) found the incidence of NEC ranging from 1-5% of all NICU admissions. The incidence of NEC is about 9% in VLBW babies as reported by Fisher JG (13) et al, which is almost equal to our study. Moreover, the etiology of NEC is not clearly elucidated but several approaches to prevent the initiation of NEC have been

attempted.

Most of the studies shows that for a variety of reasons, only breast milk feeding has attained consensus as standard of care. Probiotics are commensal bacteria that confer beneficial effect to the host. They act on multiple mechanism and can promote maturation of intestinal barrier function, regulate apoptosis, reduce growth of potentially pathogenic organisms and increase antioxidant activities. Different probiotics act on different pathways and since etiology and pathogenesis of NEC is multifactorial. Therefore, probiotics in the form of Bifidobacterium and Lactobacillus fed enterally to VLBW preterm infants for 6 weeks reduced the incidence of death or NEC. Furthermore, we found that not only the incidence but also the severity of NEC was reduced by probiotics.

Conclusion: The frequency of NEC in this study was 8.33% which is too high and is associated with 6 deaths. So, timely diagnosis and management of NEC should be done.

Finding: None

Conflict of interest: None

Ethical approval: Given by ethical committee.

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