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Abstract 21

Comparison of Clinical Presentation and Outcome of NEC and Non-NEC Focal Intestinal Perforation in Extremely Low Birth Weight Neonates - Theory of Natural Selection: A Surgical Perspective

Patankar Jahoorahmad Z, Susan Fernandes, Allan Pereira, Ankit Desai
Children's Hospital Malad West Mumbai

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Abstract

STUDY OBJECTIVE: To review and study clinical characteristics and clinico-pathologic cause of bowel perforation in NEC and Non-NEC FIP neonates with ELBW at a suburban children's hospital.

METHODS: ELBW neonates (< 1000gms) admitted with NEC perforations and Non-NEC FIP were analyzed retrospectively from 2009-2013 over a four year period. The data sheets analyzed regarding age of presentation, clinico-pathologic cause of bowel perforation, management offered and subsequent outcome achieved.

RESULTS: NEC GROUP (33): 9 out of 33 NEC babies were ELBW with perforations. NON-NEC GROUP (21): Twelve of the twenty-one babies with Non-NEC perforations qualified as FIPs; the other nine neonates had mechanical cause for perforations and had to be excluded from the study. Out of total of 21 babies in the Non-NEC Group, only seven qualified for the study. Other five ELBW had mechanical cause for perforations: Gastric perforations: 3, cecal perforation: 1 and two neonates had duodenal perforations secondary to neonatal intestinal obstruction.

NEC GROUP: All the nine babies in the group had universal inflammatory changes throughout the small and large intestines. These babies had a very fast progression of symptoms, tended to be sicker in a shorter span and were unstable pre-operatively. Intra-operative a quick lavage with drainage with stomas being mainstay of surgical treatment. More than half of them required two or more operative procedures. Post-operatively these babies had a longer hospital stay. Mortality was higher compared to Non-NEC FIP group (Table 1).

NON-NEC FIP Group: The inflammatory changes were less florid; mostly localized to one segment of bowel usually terminal ileum or cecum / colon or rectum in one instance. There was a large perforation with dehiscence of almost upto one third segment of anti-mesenteric bowel wall. In spite of such large perforation, the infection was rather localized. Interestingly this group was relatively less unstable pre-operatively, did well intra-operatively with resection anastomosis, usually ended without stomas and had a shorter hospital stay. Mortality was lower in this group compared to the NEC group (Table 1).

CONCLUSION: It should be possible to differentiate between NEC perforations and Non-NEC FIP depending on clinical characteristics and parameters available thus enabling to predict a favorable outcome for this cohort of neonates.

Table 1:

| Total Babies with Pneumoperitoneum (54) | ELBW (16) | Mortality (6) |
|--|------------------|----------------------|
| NEC Group (33) | 9 | 5 (56%) |
| Non-NEC Group (Focal Intestinal Perforations) (21) | 7 | 1 (14%) |