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Laparotomy or peritoneal drainage for the management of surgical necrotizing enterocolitis and spontaneous intestinal perforation – a 25-year retrospective chart review

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Background:

Necrotizing enterocolitis (NEC) and spontaneous intestinal perforation (SIP) are devastating disorders of neonatal gastrointestinal tracts, frequently requiring surgical intervention.

Objective:

We will determine the best surgical strategy, laparotomy (LAP) or peritoneal drainage (PD), as current evidence is inconclusive.

Methods:

We performed a retrospective cohort comparison of infants with surgical NEC or SIP at HSC from 1991 to 2016, LAP and PD defined cohorts. The primary outcome measured was survival at 30, 60, and 180 days. Secondary outcomes were cardiovascular, ventilation, and nutritional support at the same intervals, length of stay (LOS), and days to full enteral feeds (dFEF).

Results:

73 patients were included, 35 LAP and 38 PD. Survival did not differ between cohorts. Survival after LAP at 30, 60, and 180 days was 31(88.6%), 28(80%), and 28(80%). Survival after PD at 30, 60, and 180 days was 33(86.8%), 32(84.2%), and 32(84.2%).

Mean LOS (days±SD) for survivors was 99.1±96.5 for LAP compared to PD 133.7±100.4(p=0.18). dFEF was shorter for LAP (43.4±28.9) compared to PD (64.9±38.9,p=0.03).

Of the 31 LAP 30-day survivors, 30(96.8%) were off cardiovascular support, 22(71.0%) were extubated, and 10(34.5%) had reached FEF. Of the 33 PD 30-day survivors, 30(90.9%,p=0.65) were off cardiovascular support, 14(42.4%,p=0.03) were extubated, and 4(12.1%,p=0.10) had reached FEF.

Of the 28 LAP 60-day survivors, none required cardiovascular support, 26(92.9%) were extubated, and 21(75%) had reached FEF. Of the 32 PD 60-day survivors, none required cardiovascular support, 23(71.9%,p=0.09) were extubated, and 19(59.4%,p=0.31) had reached FEF.

Of the 28 LAP 180-day survivors, 27(97.4%) were extubated and 26(92.9%) had reached FEF. Of the 32 PD 180-day survivors, 29(90.6%,p=0.66) were extubated and 28(87.5%,p=0.61) had reached FEF.

Conclusion:

Surgical intervention for infants with NEC or SIP does not influence survival at 180 days. However, LAP patients tend toward less respiratory support, shorter LOS and dFEF, suggesting that LAP expedites clinical progress compared to PD.