

Intestinal perforation in newborns - time for less invasive surgical management ?

Experience of single center

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Introduction

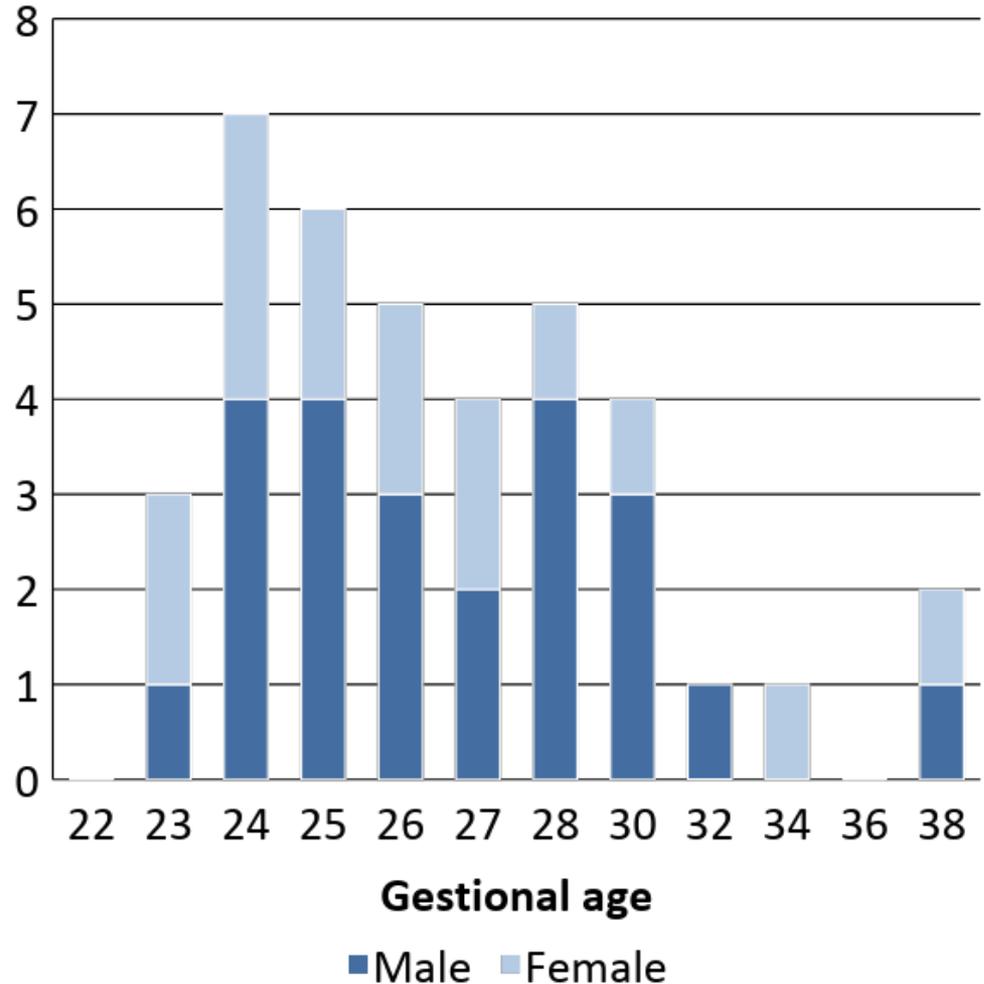
- The main causes of intestinal perforation among neonatal population are: necrotizing enterocolitis (NEC), spontaneous intestinal perforation (SIP), meconium ileus (MI).
- There is no unambiguous guidelines for proceeding in case of its occurrence.
- The aim of the study is to compare the effects of intestinal perforation treatment with peritoneal cavity drainage (PD) with laparotomy based on the experience of our center.

Materials and methods

- Retrospective analysis, 37 neonates with perforation, one NICU, 2014-2018:
 - GA and BW,
 - primary method of treatment: laparotomy vs PD,
 - endpoints: TPN length, SBS, death,
 - diagnostic methods (US vs X-ray).

Results

- NEC in 84% of infants (n = 31), 16% (n = 6) spontaneous intestinal perforation (SIP), meconium ileus(MI)
- The average BW was 1027 g
- The average GA was 27 weeks (23 - 38 Hbd; 22 ELGAN)

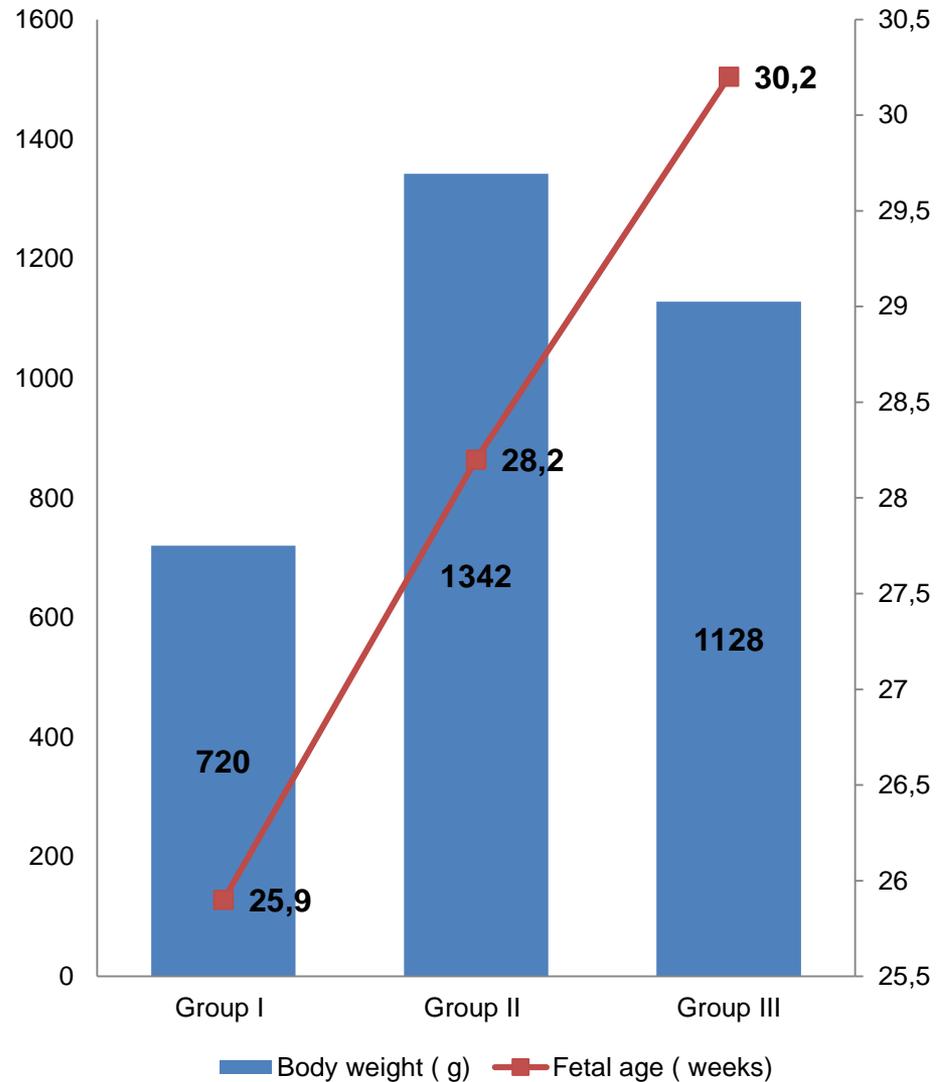


Results

Group I - newborns treated exclusively with PD
(n=11)

Group II - newborns treated with early laparotomy (n=10)

Group III - newborns who underwent delayed laparotomy after PD
(n=16)

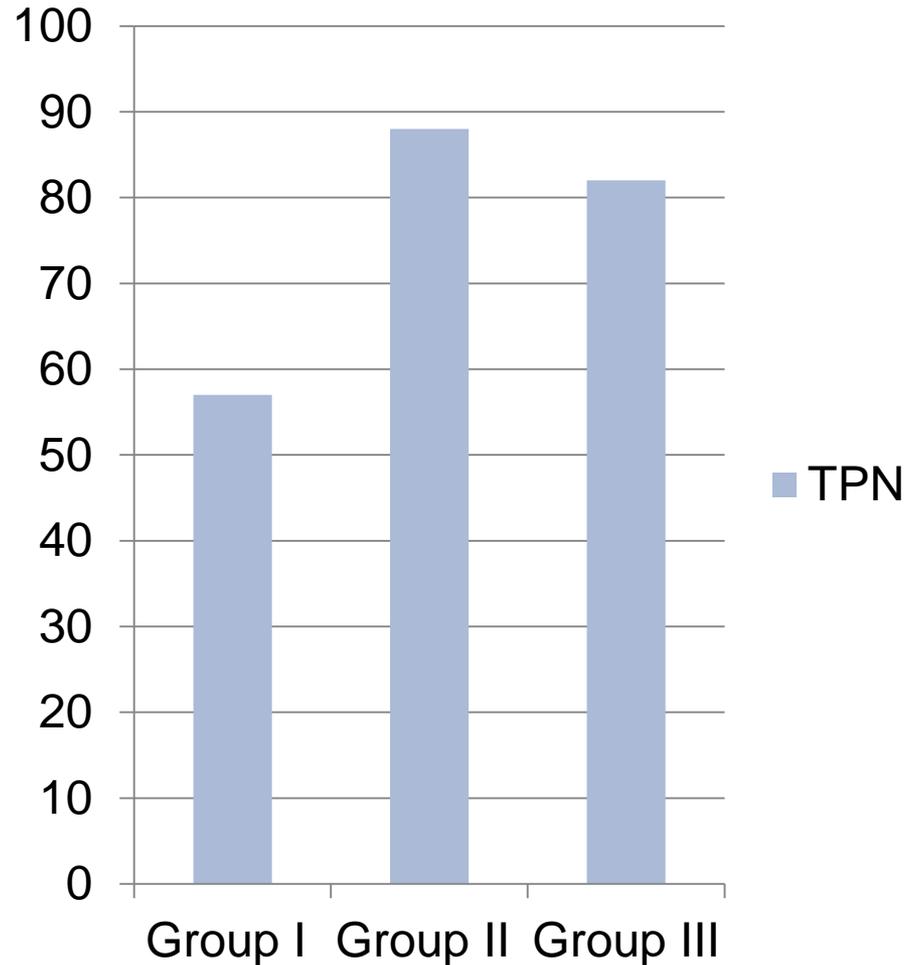


Results

- PD was performed in 73% of newborns (n=27), 16 of them required laparotomy in the following days (59%).
- Duration of drainage was 1 - 22 days (average 5,8 days).
- Early laparotomy (first line treatment) was performed in 27% (n=10) of neonates.
- US was used as basic diagnostic tool in all 37 patients.
- X-ray of the abdominal cavity was performed in 29 newborns, the result was not always unequivocal and confirmed ultrasound diagnosis.

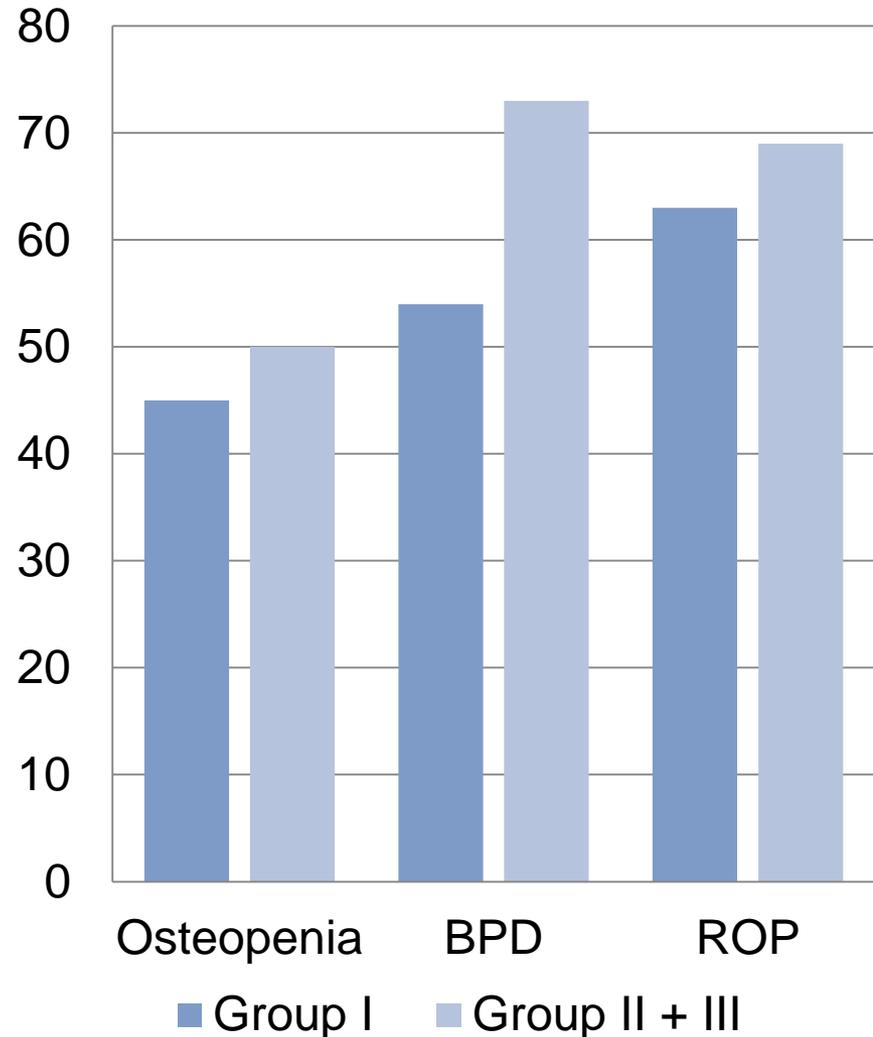
Results

- The average length of TPN in surviving children was 57 days in group I, 88 days in group II and 82 days in group III.
- In summary, newborns treated surgically (early or delayed laparotomy) required longer parenteral nutrition than children treated with PD (57 vs 90 days, $p < 0.05$).



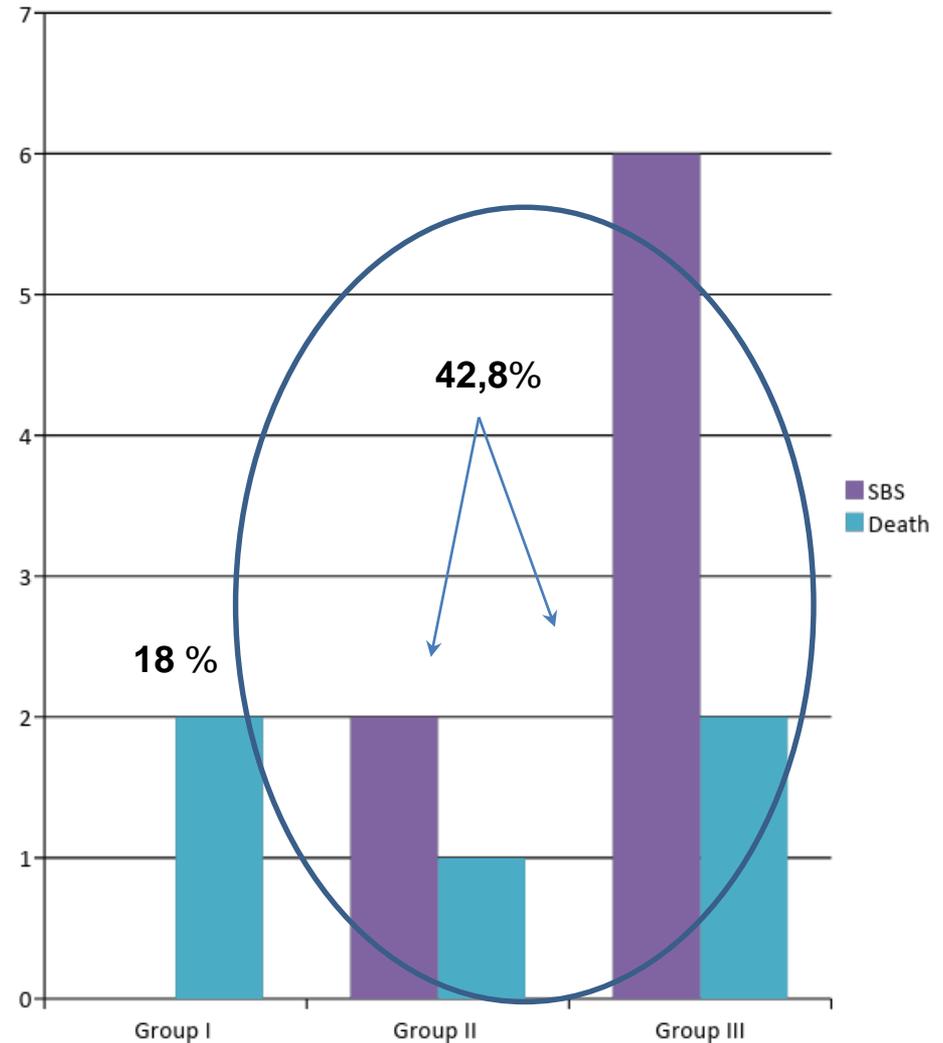
Results

- Osteopenia and ROP was observed less often in group I than in group II and III.
- BPD was observed in 54% in group I and in 73 % in groups treated surgically.



Results

- Analyzing death and short bowel syndrome as a combined endpoint, these complications are found in a much larger number of infants in the laparotomy group (early and delayed) compared to the PD group 42.8% vs 18%.



Conclusion

- The experience of our center shows the benefits of less invasive surgical management in infants with intestinal perforation.
- The majority of children with PD as a first line treatment have had finally performed a delayed laparotomy, although had time to stabilize general condition and be better prepared for surgery.
- It seems reasonable to choose treatment using peritoneal drainage as it is associated with a lower rate of fatal complications (death or short bowel syndrome).
- US plays a crucial role in the diagnosis and monitoring treatment, it's a main tool in surgical decision-making.