

LIVER DISEASE IN THE SURGICAL NEONATE WITH INTESTINAL FAILURE

Sara Gozzini, Natalie Durkin, Mark Davenport
Kings College Hospital, London, UK

Aim: To evaluate the prevalence, severity, and outcome of intestinal failure-associated liver disease (IFALD) in surgical neonates with intestinal failure (IF).

Methods: Retrospective review of surgical neonates receiving PN for ≥ 28 days (i.e. Type 1 IF) between Jan. 2004 to Dec.2015. Three sub-groups were defined based on aetiology [gastroschisis(GS), Intestinal atresia(IA) and NEC]. Two biochemical indices were chosen and defined using IFALD national guidelines [alkaline phosphatase (ALP) X 1.5 above upper limit (i.e. >750 IU/L) and bilirubin (BILI) >50 $\mu\text{mol/L}$]. An intestinal failure index was also calculated (0% - no enteral calories, 100% - autonomy). Data are described as median (range) and compared using non-parametric tests. A P value of < 0.05 was regarded as significant.

Results: 64 infants with IF at 1 month [gastroschisis (n=35), intestinal atresia (n=7) and necrotizing enterocolitis (n=22)] At this point, median BILI=64(6-272) $\mu\text{mol/L}$ and ALP=407(207-870)IU/L with significant difference between groups for BILI (GS< IA< NEC;P <0.0001), less so for ALP(GS< NEC;P<0.05). There was only moderate correlation between the two indices ($r_s = 0.37$; P<0.001), birth weight [$r_s=-0.4$ (P=0.001), $r_s = -0.25$ (P=0.05) and gestational age [$r_s = -0.45$ (P<0.0002) and $r_s=-0.28$ (P = 0.02)]. There was no correlation with IFI (P = 0.52 and P 0.55 respectively).

Although 36(56%) had BILI >50 at 1 month, using IFALD guidelines only 4 neonates fulfilled complete definition (BILI >50 , ALP >750).

At 6 months, 7 infants had persistent raised BILI >50 with only 1 having ALP >750 (this child then died of multi-organ failure). 8 (5 BILI >50) infants with short gut syndrome were still on PN (median IFI=40%).

FIG. 1 shows pattern of resolution of indices within sub-groups over 6 months.

Conclusion: While liver outcome in neonatal intestinal failure is currently excellent the definitions of IFALD considerably underestimate liver dysfunction in this susceptible population and need revision.

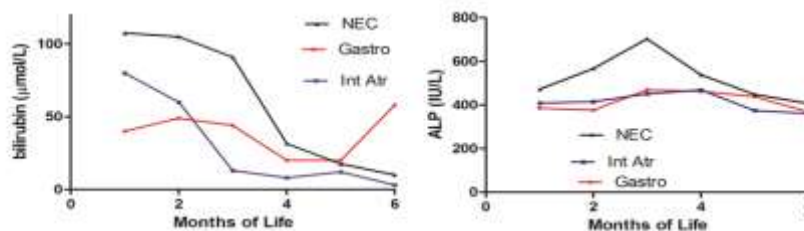


Figure: median bilirubin and ALP at 0 – 6 months