

Body of Abstract - (Aim/ Methods/ Results/ Conclusions):

Introduction & Aims - Children with hyperacute liver failure (with jaundice to encephalopathy interval within seven days) represents a unique group with rapid clinical deterioration as well as a high probability of spontaneous liver regeneration. There is, however, limited data regarding factors which may predict outcome or the need for liver transplant. We conducted this study to assess factors that can predict poor outcome in children with hyperacute liver failure.

Methods - Retrospective study of all children with hyperacute liver failure admitted in Institute of Liver and Biliary Sciences, New Delhi, between Jan 2011 to June 2015. Clinical details, etiologic workup as well as baseline laboratory parameters (including LFT, INR, Ammonia, Blood gas & Lactate) and their evolution at 12, 24, and 72 hrs following admission was recorded. King's College Criteria (KCC), Liver injury Unit score and Pediatric Risk of Mortality Score III (PRISM) was calculated at baseline and at 72 hrs. Patients were divided into two groups- Group 1: Survival with native liver, and Group 2: Death or Liver transplantation. Outcome was assessed at 30 days.

Results - Out of 106 children with acute liver failure, 33 children (18 boys, 54%) were identified as hyperacute liver failure with a jaundice to encephalopathy interval of median 3 days (range 0-7 days). Median age was 7.6 yrs (range 0.5-17 yrs). Hepatitis A (n=21) was the commonest etiology while others included indeterminate (n=5), drug induced (n=5) and secondary hemophagocytic lymphohistiocytosis (n=2). Eighteen children (54.5%) presented with grade 3 or 4 encephalopathy with features of raised intracranial pressure. Twenty six children (79%) survived with native liver while five died and two were transplanted. Grade of hepatic encephalopathy, presence of sepsis, bleeding or renal failure were not significantly different between the two groups. Mean values for total bilirubin, ALT, INR, ammonia and lactate at admission showed no significant difference between the two groups. Predictors of mortality on univariate analysis included non viral etiology (p=0.02), peak INR (p value=0.02) and plasma lactate at 24 hrs following admission (p value =0.03) while on multivariate analysis, plasma lactate at 24 hrs was the only significant predictor with an area under ROC of 0.89 (80% sensitivity and specificity) for a plasma lactate above 2.3 mmol/L. KCH criteria, PRISM 3 or LIU score at admission did not predict mortality.

Conclusion - Majority of children with hyperacute liver failure survive with native liver despite presence of raised intracranial pressure. Failure to normalize plasma lactate at 24 hrs after admission is the best predictor of mortality in these children.