

Natural history and predictors of poor outcomes in acute liver injury patients in a setting without liver transplant facility

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Introduction Hepatitis is one of the leading causes of mortality globally and Pakistan, too, has a very high burden of liver disease and associated morbidity and mortality. Significant burden combined with lack of adequate transplant facilities make it crucial to understand predictors and natural history of more severe stages of liver damage or inflammation, such as acute liver injury, as is the aim of this study. Even though it is known that Acute Liver Injury (ALI) is defined as $INR \geq 2.0$, $ALT \geq 10X$ ULN, and Total Bilirubin ≥ 3 mg/dl, there is a dearth of literature on factors and prognosis associated with ALI. **Methods** This was a retrospective cohort study of patients older than age 18 years and meeting ALI criteria admitted at the Aga Khan University Hospital from January 2014 to December 2017. Patients with chronic liver disease or hepatic encephalopathy at presentation were excluded. We categorized patients into 2 subgroups: $1.5 < INR < 1.9$ and $INR > 2$ to compare outcomes based on INR derangement. Linear regression was used to determine predictors of poor outcomes including mortality. **Results** 110 patients out of the 1500 reviewed patients met ALI criteria, with 70 patients in $INR > 2$ group. The most common etiology was hepatitis E infection followed by Hepatitis A, Dengue, Drug-induced, ischemic, Hepatitis B and D. A total of 27 patients developed at least one of the poor outcomes i.e. ALF, death, or liver transplantation. AST ($p=0.03$), creatinine ($p=0.02$), and length of hospital stay

($p=0.04$) were found to be the predictors of death. $INR > 2$ was associated with more derangement in GGT, lower WBC, development of a poor outcome in more patients (24 vs. 3; $p=0.002$), and higher mortality rate (13 vs. 1 $p=0.01$). **Conclusion** ALI patients with severely raised AST, acute renal deterioration, and longer hospital stay are more likely to develop poor outcomes.

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