Background: Despite improvement in health care over last few decades diarrhoea is still one of the leading causes of death in developing countries. While there have been few studies on risk factors for fatal acute gastroenteritis (AGE) before 2000, mostly from developing countries, there is a paucity of studies in the current era. In the past few decades despite increased awareness and understanding about diarrhoea and dehydration, use of reduced osmolarity ORS and zinc, children continue to die with severe dehydration. It is therefore important to determine the risk factors for diarrhoea-associated deaths in children in the current era so as to be able to identify and resuscitate these children early and timely. Such data would help in the formulation of better prevention strategies and the eventual reduction of mortality rate.

Methods: This was a retrospective chart review of all cases of AGE with dehydration and shock admitted to the Paediatric intensive care unit (PICU) over the last 5 years. Records were retrieved after obtaining ethical clearance. Children who died during hospital stay were compared with those who survived. Information including demographic details, nutritional status, clinical features, laboratory parameters and clinical course were recorded in a structured proforma. WHO criteria/guidelines were used for assessment of dehydration and management. Surviving sepsis campaign guidelines were used for the management of shock. Data was analysed using stata11.

Results: A total of 39 / 1249 (3%) children were admitted to the PICU with AGE with severe dehydration and shock during this period of whom 22 (56%) were males. Majority (83%) were from urban slums and had watery stools (95%). Fever, vomiting (96% each) and poor oral intake (95%) were the commonest complaints. Twelve children (31%) had seizures and 89% were lethargic. One third had received ORS before admission. Forty seven percent had severe acute malnutrition. Sixty four percent and 72% required inotropes and ventilation at admission respectively. Of the 39 children, 14 children (36%) died. The following variables were found to be significantly associated with death: younger age (p=0.02), dysentery (0.1), use of diluted cows milk (0.03), pallor (0.01), thrombocytopenia (0.002), acidosis (0.03), hyperchloremia (0.01), increased lactate (>2 mmol/L) (0.002), shock index (0.004), elevated leucocyte count (0.05) and hypoalbuminemia (p=0.02). Other variables like nutritional status and duration of illness were not different between survivors and non-survivors. Non-survivors had longer duration of inotrope requirement and shorter ICU stay as compared to survivors. On multivariate analysis, only age (OR (95% CI); p value): 0.76(0.55, 0.92); 0.04) presence of acidosis (3.14 (1.1, 16.8); 0.04) and hypoalbuminemia (6.3 (1.16, 13.9); p=0.02) were found to be associated with death.

Conclusion: The case fatality rate of AGE with severe dehydration continues to be high despite increased awareness and better formulations of ORS available in the current era. Younger age, presence of acidosis and hypoalbuminemia increase the risk of death in these patients.