Clinical Risk Score for Mortality and Predictors of Severe Disease in Adult Patients with Dengue

Authors : Siddharth Jain, Abhenil Mittal, Surendra Kumar Sharma

Abstract : Background: With its recent emergence and re-emergence, dengue has become a major international public health concern, imposing significant financial burden especially in developing countries. Despite aggressive control measures in place, India experienced one of its largest outbreaks in 2015 with Delhi being most severely affected. There is a lack of reliable predictors of disease severity and mortality in dengue. The present study was carried out to identify these predictors during the 2015 outbreak. Methods: This prospective observational study conducted at an apex tertiary care center in Delhi, India included confirmed adult dengue patients admitted between August-November 2015. Patient demographics, clinical details, and laboratory findings were recorded in a predesigned proforma. Appropriate statistical tests were used to summarize and compare the clinical and laboratory characteristics and derive predictors of mortality and severe disease, while developing a clinical risk score for mortality. Serotype analysis was also done for 75 representative samples to identify the dominant serotypes. Results: Data of 369 patients were analyzed (mean age 30.9 years; 67% males). Of these, 198 (54%) patients had dengue fever, 125 (34%) had dengue hemorrhagic fever (DHF Grade 1,2)and 46 (12%) developed dengue shock syndrome (DSS). Twenty two (6%) patients died. Late presentation to the hospital (≥5 days after onset) and dyspnoea at rest were identified as independent predictors of severe disease. Age ≥ 24 years, dyspnoea at rest and altered sensorium were identified as independent predictors of mortality. A clinical risk score was developed (12*age + 14*sensorium + 10*dyspnoea) which, if ≥ 22, predicted mortality with a high sensitivity (81.8%) and specificity (79.2%). The predominant serotypes in Delhi (2015) were DENV-2 and DENV-4. Conclusion: Age ≥ 24 years, dyspnoea at rest and altered sensorium were identified as independent predictors of mortality. Platelet counts did not determine the outcome in dengue patients. Timely referral/access to health care is important. Development and use of validated predictors of disease severity and simple clinical risk scores, which can be applied in all healthcare settings, can help minimize mortality and morbidity, especially in resource limited settings.

Keywords : dengue, mortality, predictors, severity

Conference Title : ICTID 2016 : International Conference on Tropical Infectious Diseases
Conference Location : Bangkok, Thailand
Conference Dates : December 12-13, 2016