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Ultrasound as an Aid to Predict the Onset of Leaking in Dengue Haemorrhagic Fever: Experience of a Dengue Treatment Facility in South Asia

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Abstract : Introduction: Dengue is a major Public Health burden of two clinical entities, Dengue Fever & Dengue Haemorrhagic Fever (DHF). The vast majority of dengue deaths occur in DHF patients, where the diagnosis hinges on the presence of fluid leakage. Limited Ultrasound Scans (USS) of chest and abdomen are used widely at Centre for Clinical Management of Dengue & Dengue Haemorrhagic Fever (CCMDDHF), as the primary method for detecting fluid leaking in DHF. This study analyses the relationship between haematological and USS findings at the onset of leaking and to further determine the usefulness of ultrasound in diagnosing DHF. Methods: A prospective analysis of 80 serologically confirmed dengue patients initially admitted to a General Medical and Paediatric wards who were subsequently transferred to the CCMDDHF from March to September 2017 were analysed. In addition to repeated blood counts and capillary haematocrits', serial USS were done to detect the onset fluid leaking by three competent and experienced doctors at CCMDDHF. Results: 80 patients (male: female: 38:42) with a mean age of 20 years (SD ±16.8, range 3-74) were evaluated. Dropping of platelet counts below 100,000 and haematocrit rise towards 20% started 4±1.3 day of fever with a mean platelet value of 69x103(range17-98x103). Gallbladder wall thickening was the commonest (98.7%) USS finding followed by fluid in hepato-renal pouch (95%), pelvic fluid (58.7%), right-sided pleural effusion (35%), bilateral effusions (7.5%). USS evidence of plasma leakage was detected in 11.25 %(n=9) of DHF cases from 1 day before significant haematocrit rise was noted. 35 (43.7%) patients with lowering platelets and haematocrit rise showed no objective evidence of plasma leaking on ultrasound scan. Conclusion: This outbreak underscores the importance of USS as a useful, sensitive and cost-effective tool for early diagnosis of suspected DHF cases, facilitating the tracking of progress of leaking and management of epidemics.

Keywords : dengue, ultrasound, plasma leaking, South Asia
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