

Quantification of red blood cell fragmentation by the automated hematology analyzer XE-2100 in patients with living donor liver transplantation

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The fragmented red cell (FRC) is a useful index for diagnosing and determining the severity of thrombotic thrombocytopenic purpura (TTP), thrombotic microangiopathy (TMA) and other similar conditions, as it is found in peripheral blood in patients with these diseases. The FRC expression rate has conventionally been determined by manual methods using smear samples. However, it is difficult to attain accurate quantification by such methods as they are time consuming and prone to a great margin of error. With cases of living donor liver transplantation, the current study examined the possibility of using a multi-parameter automated hematology analyzer, the XE-2100 (Sysmex Corporation) for FRC quantification. While there was a notable correlation between the manual and automated measurements, the manual measurement resulted in higher values. This suggested remarkable variations in judgment by individuals. The FRC values had a significant correlation with the reticulocyte count, red blood cell distribution width (RDW), fibrin/fibrinogen degradation products (P-FDP) and lactate dehydrogenase (LDH) among the test parameters, and this finding was consistent with the clinical progression in patients. The automated method can offer precise measurements in a short time without inter-observer differences, meeting the requirement for standardization. The determination of FRC count (%) by the XE-2100 that enables early diagnoses and monitoring of TTP or TMA will be useful in the clinical field