

論 文 要 旨

Circulating syndecan-1 as a predictor of persistent thrombocytopenia and lethal outcome: a population study of patients with suspected sepsis requiring intensive care

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Background

Sepsis is defined as life-threatening organ dysfunction caused by dysregulated host responses to infection. Recent studies have suggested that endotheliopathy may be the common basis for multiple organ failure in sepsis. Under septic conditions, accumulation of proteases accelerates shedding of proteoglycans, such as syndecan-1, from the endothelial surface, resulting in augmented leukocyte adhesion to the vascular wall, enhanced vascular permeability, and intravascular coagulation. The purpose of this study was to determine the potential utility of syndecan-1 as a biomarker linking endotheliopathy to organ failure.

Methods

One hundred patients with suspected infections who were admitted to the intensive care unit (ICU) at Kagoshima University Hospital were consecutively enrolled in the study. Serum syndecan-1 levels were measured using an in-house enzyme-linked immunosorbent assay. The difference between serum syndecan-1 levels in 28-day survivors and non-survivors was analyzed by the Mann–Whitney *U*-test. Receiver-operating characteristics curve analysis with area under the curve calculation was used to quantify the predictive performance of serum syndecan-1 for 28-day mortality. The correlations between serum syndecan-1 and coagulation markers were analyzed by Spearman's rank correlation test.

Results

Serum syndecan-1 levels in non-survivors were significantly higher than those in survivors on Day 1 and Day 3 ($P < 0.01$). Among multiple organ failures, coagulation failure and renal failure were significantly correlated with serum syndecan-1. Spearman's rank correlation test indicated that serum syndecan-1 was weakly but significantly correlated with disseminated intravascular coagulation score ($\rho = 0.33$, $P < 0.01$). Patients with serum syndecan-1 ≥ 21.4 ng/mL showed delayed recovery from thrombocytopenia relative to patients with serum syndecan-1 < 21.4 ng/mL.

Conclusions

Elevated circulating syndecan-1 on the first day of ICU admission was associated with persistent thrombocytopenia and lethal outcome in patients with suspected sepsis.