Clinical Significance of T-Cell Immunoglobulin Mucin 3 Expression on Peripheral Blood Mononuclear Cells in Pediatric Acute Immune Thrombocytopenia

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Abstract:

T-cell immunoglobulin mucin 3 (TIM-3) is a transmembrane protein that plays an important role in several autoimmune diseases. The relationship between TIM-3 and excessive immune responses in immune thrombocytopenia (ITP) is still unknown. In this study, we evaluated the relationship between the expression of TIM-3 on peripheral blood mononuclear cells in patients with ITP and the disease severity. The frequency of lymphocyte and monocyte subsets and their TIM-3 expression were evaluated in patients with acute ITP (n = 45) and in healthy control (n = 20) using flow cytometry. Based on bleeding severity, patients were classified into 3 subgroups as mild (n = 12), moderate (n = 25), and severe (n = 8) bleeding. T-helper lymphocytes was found to be significantly decreased in the severe bleeding group compared to the mild and moderate bleeding groups, while CD56high natural killer (NK) cells were significantly expanded in severe bleeding group. In contrast, classical, intermediate, and nonclassical monocytes, natural killer T lymphocyte (NKT), and CD56dim NK cells showed no significant changes among different patient groups. This alteration of lymphocyte and monocyte subsets was associated with significant decrease in TIM-3 expression on CD56high NK cells, T-helper lymphocytes, NKT cells, and nonclassical monocytes in patients with ITP compared to the controls. Lower level of TIM-3 was found in severe bleeding group compared to mild and moderate bleeding groups. These results indicate that TIM-3 may be involved in the pathogenesis of ITP which subsequently can represent an opportunity for new therapeutic plan, moreover. This may have a prognostic value for disease severity.

Keywords:

mononuclear cells, T-cell immunoglobulin mucin 3, immune thrombocytopenia

Published In:

Clinical and Applied Thrombosis/Hemostasis, NULL, NULL