IMMUNE CHECKPOINTS IN PRIMARY IMMUNE THROMBOCYTOPAENIA (ITP): FROM BENCH TO BEDSIDE

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Immune regulation via checkpoint molecules such as CTLA-4 and PD-1 is imperative to orchestrate immune system homeostasis. Primary immune thrombocytopaenia (ITP) is an autoimmune disease characterized by T and B cell-mediated reduction of platelet count. This study aimed to investigate the expression of immune checkpoints on T cell subsets in ITP patients receiving different treatments and how it impacts the clinical parameter. Peripheral blood mononuclear cells were isolated from 17 ITP patients: 5 patients currently on no treatment, 7 patients on Eltrombopag (Elt), and 5 patients on Romiplostim (Rom). The expression of PD-1, CTLA-4, Tim 3 and LAG-3 were assessed on CD4+ and CD8+ T cell subsets by flow cytometry. Kruskal-Wallis H tests were used to measure the differences in treatment groups. CTLA-4 and LAG-3 expressions on CD8+ T-cells were significantly reduced in Elt-treated ITP patients compared to untreated patients and patients on Rom (P value < 0.05). PD-1 and Tim-3 expression did not differ significantly between the treatment groups. Another remarkable finding was that the expression of CTLA-4 on CD8+ T-cells, but not on CD4+ T-cells, correlated significantly with platelet count in ITP patients (r = 0.606, P value < 0.01). No further correlations were observed between the other immune checkpoint molecules expression and the platelet count. These novel findings confirm immune dysregulation, notably in CD8+ T cells, associated actively with ITP disease activity. Further work is needed to demonstrate the mechanism of treatments, particularly Elt, on immune checkpoints alteration.

Keywords: Immune checkpoint markers, Immune Thrombocytopaenia, Eltrombopag, Platelet, Romiplostim