Interrelationships among regulatory cells in patients with lymphoproliferative disorders

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Different cell subsets which are endowed with potent immune regulatory properties have recently been identified. They are thought to play key roles in antitumor immunity and may have a prognostic value in certain hematological malignancies. However, little is known about the interrelationships among these regulatory cells. Herein, we prospectively studied levels of regulatory T-cells (Tregs), regulatory B-cells (Bregs) and invariant natural killer T-cells (iNKT) in blood and marrow of patients with lymphoproliferative disorders (LPD) taking rituximab. Using 10-color flow cytometry, Tregs were phenotypically identified as CD3+, CD4+, CD25+, CD127low and the intra-cellular staining of FoxP3+ while Bregs as CD19+, CD24high and CD38high. iNKT cells were characterized by the positive-staining of Va24Ja18 T cell receptor alpha chain, along with CD3+ and CD4+ markers. Compared to normal controls, LPD patients exhibited significantly lower levels of circulating Tregs (1.1% ± 0.17 versus 0.75%±0.07; P=0.009, Mann-Whitney U test). Similarly, levels of circulating CD4+iNKT cells in patients (0.22%±0.46) were significantly lower compared to controls (0.35%±0.48; P=0.005). Levels of circulating Bregs, however, were similar among study groups. The ratio Tregs/Bregs was significantly lower in patients compared to controls (P=0.009). Similar trends were also evidenced for Tregs/CD4+iNKT and CD4+iNKT/Bregs ratios (P=0.06). Interestingly, no significant differences in levels of Tregs, Bregs and CD4+iNKT cells were found between the blood and marrow. Although, the majority of associations did not reach statistical significance, a negative correlation was noticed between Tregs/Bregs ratio and levels of CD4+iNKT (r=-0.58, P=0.008). Collectively, these findings provide further advance the interrelationships among regulatory cells and provide new insights into their quantitative alterations in LPD patients.

Biography
Zahra Al-Qarni is a research student in Sultan Qaboos University, Oman. Her research interests include various fields in Clinical Sciences including Blood Disorders & Breast Cancer.

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