

Frequency of Circulating B1a and B2 B-cell Subsets in Egyptian Patients with Type 2 Diabetes Mellitus

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Type 2 diabetes mellitus (T2DM) is a growing health problem in Egypt. T2DM is recognized as chronic inflammatory disease with involvement of immune cells including B cells. We aimed to determine the frequency of antibody secreting B1a and B2 B cells in T2DM patients, their correlation with diabetes metabolic parameters and whether they play a role in diabetic foot infection (DFI) development. This study included 56 participants, recruited from Al-Zahraa hospital, Al-Azhar University, Egypt. Of these, 36 patients were diagnosed with T2DM, divided to two groups; (1) DM group (n=19) recently diagnosed, without foot complication; (2) DFI group (n=17); in addition to a Control group (n=20). The study assessed the frequency of circulating B1a (CD19⁺CD23⁻CD5⁺), and B2 (CD19⁺CD23⁺CD5⁻) cells by flow cytometry in diabetic patients. Comparison of the 3 studied groups revealed significant differences in frequency of studied total B cells ($P=0.011$), B1a ($P< 0.001$) and B2 subsets ($P< 0.001$). Comparison of B cell subsets between DFI, DM groups showed significant decrease in B1a in DFI group ($P< 0.001$). B1a cells % showed inverse correlation with HgA1c ($r=-0.47$, $P< 0.001$), LDL ($r=-0.64$, $P< 0.001$), and TG ($r=-0.67$, $P< 0.001$) but showed positive correlation with HDL ($r=0.61$, $P< 0.001$), while B2 cells showed opposite correlations. We concluded that imbalance of B cell subsets is seen in T2DM subjects. Beneficial role of B1a cells was spotted as they correlated inversely with glycemia and lipidemia in contrary to B2 cells. Decrease in B1a cells may predispose to DFI development.