

BLOOD DENDRITIC CELL NUMBERS IN CHILDREN WITH TYPE 1 DIABETES IN COMPARISON TO NORMAL SUBJECTS

Slavica Vuckovic¹, Inge Flesch¹, Mark Harris, Damien Gardiner¹, Deanna True², Sonia Tepes¹, David Cowley³, Andrew Cotterill², Derek Hart¹

¹ *Mater Medical Research Institute, South Brisbane, Australia*

² *Mater Children's Hospital, South Brisbane, Australia*

³ *Mater Hospital, South Brisbane, Australia*

Juvenile type 1 diabetes (T1D) is one of the most common autoimmune diseases, affecting approximately 1 in 300 children. In the early stage, mononuclear cells infiltrate the pancreatic islets. In the late stage, insulin-secreting pancreatic β cells are destroyed by auto reactive T cells. When clinical symptoms become apparent, 60-80% of the β cells are destroyed. Dendritic cells (DC) are highly specialized antigen-presenting cells that play a crucial role in the induction of T cell immunity and maintenance of tolerance. We are interested in the characterization of DC subsets in peripheral blood of diabetic children.

Blood samples were collected from children with established diabetes (n=45, 2-18 years) and healthy age-matched control children (n=45). Autoantibodies to glutamic acid decarboxylase (GAD) and tyrosine phosphatase (IA2) were measured in sera of 20 diabetic children and all sera tested were positive. Myeloid CD11c⁺ and plasmacytoid CD123⁺ DC subsets were enumerated in whole blood of diabetic and control children by using TruCOUNT beads in conjunction with 4-colour flow cytometry. This assay uses a whole blood "Lyse/No wash" flow cytometric protocol and allows precise quantification of DC in blood. In diabetic children, counts of CD11c⁺ myeloid DC declined from 173±95 DC/ μ l at 2-3 years of age to 60±19 DC/ μ l at 16-17 years of age. Counts of plasmacytoid CD123⁺ DC were 20±3 DC/ μ l at 2-3 years of age and 11±4 DC/ μ l at 16-17 years of age. A similar age-related decline of DC counts was found in blood of healthy control children. Our results did not show abnormal DC subset distribution in established diabetes. These results suggest that abnormal DC responses may only be present during the acute phase of disease when there is active β cell destruction.

TITLE HERE IN UPPERCASE

List of Authors here with presenting author underlined

List affiliations here
