



Clifford Lingwood

University of Toronto, Canada

Circulating B cell expression of CD77/Gb3 as a means to predict PTLD

Posttransplant lymphoproliferative disorder (PTLD) remains a major problem following transplantation (mortality 40-60%) (likely to increase with the expanding populations of hemopoietic stem cell transplant patients, who are at increased PTLD risk. There is no means to predict PTLD but Epstein-Barr virus (EBV) infection is involved. The glycosphingolipid, globotriaosyl ceramide (Gb3, also termed CD77, a germinal centre B cell marker) is the Burkitt lymphoma antigen and is expressed on EBV infected B cells. CD77 is not expressed on normal circulating B cells. We showed PTLD B cell lymphoma cells within tumour biopsies can be stained by the Gb3-binding Vero (Shiga) toxin. EBV infected tissue transplants might allow CD77 positive germinal centre B cells to escape into the circulation to provide progenitors of the infiltrating B cell PTLD lymphoma which can develop, after transplant. Monitoring circulating CD77+ B cells subsequent to transplant, might provide a reliable forewarning of PTLD.

By FACS with FITC-Verotoxin1 B subunit, to bind CD77, we monitored CD77 expression on CD19 + circulating B cells in 14 pediatric patients for one year post transplant. Of these patients, only one developed PTLD and we could predict this event via an extremely high level of CD77+ B cells in the blood, 18 days prior to PTLD diagnosis. All other samples showed a basal level of circulating CD77+ B cells. This indicates routine monitoring of blood B cell CD77 expression could be a simple, general predictor of PTLD, allowing benign treatment to prevent, rather than aggressive treatment attempting to cure, established PTLD.

Biography

Dr Lingwood completed his PhD at the University of London in 1975. He has a long standing interest in the function and biochemistry of glycosphingolipids and has more than 175 peer reviewed publications in this field.

cling@sickkids.ca