Elevated CD 83 in Adult Acute Lymphoblastic Leukemia associated with poor Clinical Outcome

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Abstract

Context: CD83 is expressed by mature dendritic cells and activated lymphocytes but not by other peripheral blood cells. Some tumor cells have high expression of CD83 on the cell surface, such as Hodgkin lymphomas (HLs), diffuse large B-cell lymphoma, adult acute lymphoblastic leukaemias(ALL) , gastric extra-nodal marginal zone lymphomas and lung cancer cells.

Objectives: to determine the prognostic role of CD83 in adult ALL and correlated it to with clinical outcome.

Design: Prospective study. The patients were followed up to 12 months.

Setting: Clinical Hematology and Oncology unit, Internal Medicine department, Faculty of Mdicine, Ain Shams University, Cairo, Egypt.

Patients: 60 subjects (40 newly diagnosed adult ALL patients and 20 age- and sex-matched healthy controls.

Intervention: We analysed CD83 expression by flowcytometry .Cases have been followed up for one year after enrollment into the study.

Main Outcome measures: to measure CD83 in newly diagnosed ALL patients and correlate its level with clinical outcome and treatment response

Results: ALL patients exhibited a statistically significant increase in CD83 expression on their lymphoblast compared to control group [median19.5 %(IQR 5.4-48.15%) vs 7 %(IQR 6.1-8.5%), respectively

Based on CD83 expression on B.M lymphoblast, patients were divided into two groups: a group with high CD83 (≥9.8%) and the other with normal CD83 expression (<9.8%) compared to the control group . The median (IQR) of the overall survival and disease free survival was longer than those normally expressed CD83 versus those with higher expression [180days (IQR 60-240) &105 days (IQR 30-160) vs 80 days (IQR 60-240) &51days (IQR 22-150) days, respectively).

Conclusion: We concluded that elevated serum CD83 at diagnosis can be used as a prognostic marker and predictor of disease response to chemotherapy in patients with ALL and associated with inferior overall and disease free survival.

Objective

The aim of this study is to determine the prognostic role of CD83 in adult ALL, We evaluated CD83 expression on bone marrow lymphoblasts by flowcytometry and correlated it with clinical outcome.

Background

CD83 is a transmembrane immunoglobulin superfamily member with a regulatory function on lymphocyte maturation, activation, and homeostasis in the immune system. CD83 is expressed by mature dendritic cells and activated lymphocytes but not by other peripheral blood cells. Some tumour cells have high expression of CD83 on the cell surface, such as adult acute lymphoblastic leukaemia, Hodgkin lymphomas and diffuse large B-cell lymphoma.

A soluble version of CD83 protein with immune suppressive function has been reported. Serum sCD83 concentration is increased in some haematological malignancies, including chronic lymphocytic leukaemia, but returns to normal in patients who responded to) and patients with low CD83 chemotherapy.

Materials & Methods

This study was conducted on 60 subjects (40 newly diagnosed adult ALL patients and 20 age- and sex-matched healthy controls, with their ages ranging from 16 to 50 years

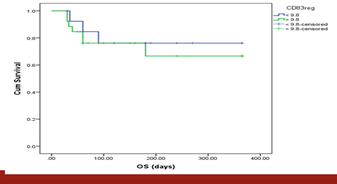
We analysed CD83 expression by flowcytometry .Cases have been followed up for one year after enrollment into the study.

Results

Table 1: Comparison between the control group and studied ALL patients regarding CD83 expression

	Control group	Patients group	P-value
CD83%[Median(IQR)]	7.00 (6.1 - 8.5)	19.55 (5.4 - 48.15)	**0.012**

Figure 1 : Kaplan Meier curves of OS of patients with high CD83 and low CD83



Summary

We concluded that elevated serum CD83 at diagnosis can be used as a prognostic marker and predictor of disease response to chemotherapy in patients with ALL and associated with inferior overall and disease free survival.

Discussion

Our results found that ALL patients exhibited a statistically significant increase in CD83 expression on their lymphoblast compared to control group [median19.5 %(IQR 5.4-48.15%) vs 7 %(IQR 6.1-8.5%), **p=0.012**. respectively.

Based on CD83 expression on B.M lymphoblast, patients were divided into two groups: a group with high CD83 (≥9.8%) and the other with normal CD83 expression (<9.8%) compared to the control group,

Kaplan Meier curves of OS of after 12 months was lower in patient with high CD83(66.6% vs 76.72%, median survival = 270 days vs 297days but no statistical significance

Kaplan Meier curves of DFS after 12 months, patients with high CD83 (i.e. higher than 9.8%) (green line) and patients with low CD83 (i.e. lower than 9.8%) (blue line); DFS = 72.9% vs 66.7%, median survival = 289 days vs 258 days no statistical significance