34th Euro-Global Summit on **Cancer Therapy & Radiation Oncology**
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13th International Conference on **Orthopedics, Arthroplasty and Rheumatology**
July 25-27, 2019 London, UK

Study of CD1d expression and interleukin-22 level in patients with chronic lymphocytic leukemia: Correlation with disease characteristics

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Chronic lymphocytic leukemia (CLL) is an environment-dependent hematologic malignancy where interactions with accessory cells through cytokines and their receptors seem to confer a survival advantage, thus contributing to disease progression. Interleukin-22 (IL-22) is a T-cell-derived cytokine that promotes cell proliferation and survival through interaction with its receptor IL-22RA1. NKT cells mount strong antitumor responses and are a major focus in developing effective cancer immunotherapy. The functional consequences of CD1d expression on tumor cells are not well understood. However, increasing evidence suggests that they may affect invariant NKT cells. The aim of this work was to study the expression of CD1d and interleukin 22 level in patients with CLL in relation to disease characteristics. This study was conducted on 40 CLL patients diagnosed in the MRI Hematology Department as well as ten age and sex matched controls. The mean expression of CD1d was significantly lower among CLL patients in comparison to the control group (12.14 vs. 26.60%). IL-22 showed significantly higher mean value among CLL patients compared to the control group (47.01 vs.10.64 pg/ml). Significantly higher mean values were observed among positive ZAP-70 expressing patients regarding the CD1d % (18.15 vs. 0.96 %) and IL-22 (51.94vs. 37.83 pg/ml).The ROC curve showed that CD1d % and IL-22 level could be used as a sensitive indicator for positive ZAP-70 state, where the area under the curve was statistically highly significant (AUC=0.780, p=0.004), (AUC=0.809 p=0.001). Expression of CD1d % showed statistically significant positive correlation to ZAP-70 and IL-22 level. Serum IL-22 level showed statistically significant positive correlation to ZAP-70. Our findings strongly recommend the incorporation of CD1d expression and IL22 level into routine B- CLPDs panels.

Recent Publications

1. S F El Belbesy, H A El Aggan, H K Sultan, A A El Naggar and HKF Ahmed (2015) Telomere length and human telomerase reverse transcriptase (hTERT) level in patients with acute myeloid leukemia: Impact on clinical outcome. Acta Hematologica Polonica 46(4):304-311.

2. A Sorour, MW Ayad and H Kassem (2013) The genotype distribution of the XRCC1, XRCC3, and XPD DNA repair genes and their role for the development of acute myeloblastic leukemia. Genetic testing and molecular biomarkers 17(3):195-201.

Biography

Hala K Sultan is a Professor of Hematology. She has completed Graduation from Alexandria University in 1984, Master's degree in Clinical Hematology from Faculty of Medicine at the same University in 1990 and MD degree in Benign and Malignant Hematology from Hematology department, Medical Research Institute in 1998. She has been working as a Hematologist in the same department, currently the Head of the department since 2018. She has been involved in teaching and clinical research, supervised more than 25 master and MD theses and she has about 20 publications in various international and national journals.

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