Preliminary Study on the Association between FLT3 Ligand Level in Plasma and Peripheral White Blood Cell Counts in Non-Hodgkin Lymphoma Patients and Healthy Individuals

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Abstract

FLT3-ligand (FL) in human plasma stimulates the proliferation of white blood cells (WBC) and suppresses lymphomas. This study was aimed at detecting FL levels in non-Hodgkin lymphoma (NHL) patients and healthy individuals to find the correlations between FL and absolute WBC counts. Ethical clearance was obtained from the ethical review committee of KDU. EDTA plasma samples (n = 12) of confirmed NHLs (before chemotherapy) and healthy (n = 7) were analyzed by ELISA to quantify FL. NHLs were divided into 03 subpopulations; FL < 10 pg/ml (subgroup I, n = 5), 10 - 100 pg/ml (subgroup II, n = 4), and > 100 pg/ml (subgroup III, n = 3). Absolute-Lymphocyte-Count (ALC), Absolute-Neutrophil-Count (ANC), Absolute-Eosinophil-Count (AEC), Immature-Granulocytes (IMG), Neutrophils/Lymphocytes (NLR), and Lymphocytes/Monocytes (LMR) were compared statistically by SPSS-26: Mann-Whitney analysis among sub-groups. ANC, NLR, and IMG were significantly higher ($p < 0.05$) and AEC was lower ($p < 0.05$) in subgroup I than in II. IMG was significantly higher ($p < 0.05$) and AEC was lower ($p < 0.05$) in subgroup I than in III. AEC was significantly higher ($p = 0.05$) in subgroup II than in III. The average FL was 41.5 pg/ml in the healthy group. ALC, AEC, and LMR were significantly higher($p < 0.01$) and total WBC, ANC, IMG, and NLR were lower ($p < 0.01$) in the healthy group than in NHL sub-group I. IMG, LMR, and NLR were significantly higher ($p < 0.05$) in the healthy group than in sub-group III. IMG was significantly higher ($p < 0.01$) in the healthy group than in sub-group II. It was shown that NHLs with lower FL had more deviated WBC counts, NLR, and LMR than other NHLs and healthy individuals. This preliminary study is currently being expanded to monitor the patients to detect the survival rate according to the initial FL level in NHL patients.

Keywords: *Non-Hodgkin lymphoma, FL, White blood cells and cell ratios*