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| Title | **Investigation of Treg in pediatric Acute Lymphocytic Leukemia patients during chemotherapy stages and relapse** |
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| ABSTRACT: Background :A cross-sectional case-control study has been carried out on Treg cells in pediatric acute lymphoblastic leukemia patients who have been admitted to Al-Basrah Children Teaching Specialty Hospital during the period from November 2022 to May 2023.T regulatory cells (Tregs) are immunosuppressive cells that can be divided into numerous subsets. Tregs consist of a small but heterogeneous population, which may be identified by the phenotype, CD3+CD4+CD25+ They play a crucial role in the preservation of immunological homeostasis and self-tolerance, they also play important roles In the control of cancer immunity. Tregs may also be important in acute leukemia..From this study, we conclude that the immunological marker (CD 25) specifically provided the most highly signification value as immunosuppression parameters in ALL patients ,whereas Chemotherapy represents the interested key risk factor for immunosuppression in ALL patient varies significantly among chemotherapy stages, with Consolidation having the most impact. This affect may be due to the high dose of MTX.Patients and Methods: :A70 blood samples of both sex with the age range 2 to 14 years’ old were collected from patients with Acute lymphoblastic leukemia. Additionally, this investigation included 54 healthy controls included in. CD3,CD4 and CD25 expression on leukemic blast cells were assessed using flow cytometry. (25 newly diagnosed, 12 relapse and 21 during induction and 12 during consolidation chemotherapy). were enrolled, aged 2 to14 years, along with 54 healthy controls who were the same age and gender as the study.  Blood samples were collected from all participants for flow cytometer applied to study Treg cell markers, The results of the current study showed that the highest percentage of ALL patients was in the age group (2-5) years (54.3%) followed by age group (6-12) years (41.4%) whereas the lowest percentage was in patients older than 12 year (4.3%) (P-value 0.802).Increased value of CD3+CD25+ T cells were observed in children with ALL in comparison to healthy controls with significantly difference in the markers for Tregs (mean±SD, 14.971 ± 11.06 vs. 5.680 ± 2.96 pg/ml( P<0.05)Following these findings, significant differences in the levels of CD25 was higher in consolidation than induction chemotherapy stage (mean±SD, 17.657±13.890 vs. 5.100 ±5.1438)pg/ml(p<0.05), children with ALL were also found to have significantly higher levels of CD4 in the current study when compared to healthy controls (mean±SD, 29.261 ± 13.828vs28.3465 ± 11.17146 )pg/ml( P<0.05)According to chemotherapy stage there were significant significant differences in the levels of CD25 in the relapse state , which was higher than the chemotherapy stage for new diagnosis (mean±SD, 22.185± 15.148 vs. 13.649±5. 83)pg/ml(p<0.05). A further finding was that the frequency of lymphoblast that express CD25 was considerably higher in high risk group compared to the stander risk group (mean±SD, 15.75±4.74vs. 7.92±1.012)pg/ml(p<0.05)Conclusions:Chemotherapy represent the interested immunosuppression risk factor in ALL patient , There is a significant variation an among chemotherapy stages in ALL patient immunosuppression. Consolidation represent the highly influence on ALL patient in immune suppression may be related to the high dose of MTXKeywords: Treg -Acute lymphoblastic leukemia -relapse |