THE IMPACT OF PREGNANCY ON T-CELL RECEPTOR EXCISION CIRCLES

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Aim: The rearrangement of the α-chain of TCR is accompanied by a small DNA by-products recognized as single-joint T-cell receptor excision circles (sjTRECs). sjTRECs do not replicate and dilute out with each cell division. As so, sjTRECs levels in peripheral blood are informative for post-thymic T-cell proliferation. The aim of the present study was to analysis sjTRECs in healthy women with and without previous pregnancy.

Materials and methods: 51 healthy women were included as follows: parous (PW) - 2 years after the last delivery (n= 34), and never been pregnant (NBP), (n=17). SjTRECs analysis was performed by nested qPCR assay. Anti-CD3/CD4/CD45RA/FoxP3/Ki67-monoclonal antibodies were used for flowcytometrical analysis. The FACS-analysis was done using FlowJo V10 and the Statistical analysis by GraphPad Prism7.

Results: Significantly lower sjTRECs levels in PBMCs were detected in the group of PW compared to NBP ($p<0.05$). In a limited number of simultaneous evaluations of Ki67, we found higher proportions of proliferative Ki67+CD45RA+CD3+T-cells in PW ($p< 0.05$). The overall analysis of naive regulatory (FOXP3+CD45RA+Tregs), and non-regulatory (CD45RA+CD3+; FOXP3-CD45RA+CD4) T-cells did not show differences between the studied groups ($p>0.05$).

Conclusion: Our results suggest that the pregnancy-related changes in the endocrine milieu may impact T-cell population in the periphery by modifying the proliferative capacity of CD3+ cells. Altogether, our results showed that pregnancy-associated variations manifest versatility of the immune system to maintain peripheral homeostasis.

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