Clin. Lab. 2025;71:1-2

ORIGINAL ARTICLE

Dynamic Changes in T and B Lymphocyte Subsets Throughout Pregnancy: Establishing Reference Ranges and Clinical Implications

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SUMMARY

Background: **The immune function of pregnant women undergoes adjustments to meet gestational requirements, which differ from healthy adults. This study aimed to establish reference ranges for lymphocyte subpopulation during pregnancy and explore changes in immune function during different stages of pregnancy.**
Method: **The participants were divided into the early pregnancy group (143 cases), mid-pregnancy group (42 cases), late pregnancy group (34 cases), postpartum group (3 cases), and postnatal group (10 cases). Peripheral blood T and B lymphocyte subpopulation were detected using flow cytometry, including a total of 25 cell subgroups.**
Results: **There was statistical significance in 7 indicators (naive $CD4^+$ T lymphocytes, central memory $CD4^+$ T lymphocytes, effector memory $CD4^+$ T cells, central memory $CD8^+$ T lymphocytes, $CD8^+$/$HLADR^+$, Th1, and transitional B lymphocytes) among the early pregnancy, mid-pregnancy, and late pregnancy groups. Two indicators (naive $CD4^+$ T lymphocytes and $CD8^+$/$HLADR^+$ T lymphocytes) showed an increasing trend from early pregnancy to late pregnancy, and two indicators (central memory $CD4^+$ T cells and transitional B cells) showed a decreasing trend. Compared to the reference range for healthy adults, four indicators ($CD8^+$ T lymphocytes, $CD8^+$/$CD28^+$ T lymphocytes, effector memory $CD8^+$ T cells and Th2) were higher than those in the normal population and three indicators (Treg cells, naive B lymphocytes, and plasma cells) were lower than those in the normal population.**
Conclusion: **This study delineates significant changes in T and B lymphocyte subsets during pregnancy, establishing crucial reference ranges. These findings enhance our understanding of immune adaptations in pregnancy, offering valuable data for clinical monitoring and management.**
(Clin. Lab. 2025;71:1-2. DOI: 10.7754/Clin.Lab.2024.241024)

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Manuscript accepted November 27, 2024

Supplementary Data

Table S1. Antibody panel for T1, T2, and B tube.

Subtype	Antibody panel
	FITC PE Percp-Cy5.5 PE-CY7 APC APC-H7 V450 V500
T1 tube	CD45RA CD28 HLA-DR CD8 CD27 CD3 CCR7 CD4
T2 tube	CD45RA CD25 CCR-6 CD127 CXCR3 CD3 CCR4 CD4
B tube	IgD CD38 CD138 CD19 CD27 CD24 CD20 CD45

Fluorescein isothiocyanate (FITC), phycoerythrin (PE), peridinin-chlorophyll protein (PerCP), allophycocyanin (APC), phycoerythrin-cyanine 7 (PE-CY7), allophycocyanin-H7 (APC-H7), V450, brilliant violet 480 (V500).