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**Epigenetic changes of immune cells in polycystic  
ovary syndrome**

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**Background:** Polycystic ovarian syndrome is one of the most prevalent causes of female infertility, with a complex etiology. Studies on human tissues have demonstrated a higher expression of inflammation markers among the patients. High level of antithyroglobulin antibodies is also reported among some patients. In recent years studies have reflected that the epigenetic alterations in immune system may be involved in pathogenesis of this syndrome.

**Objective:** To have a better view on epigenetic changes of immune system among polycystic ovarian syndrome patients a narrative review study was performed.

**Materials and Methods:** In this study, 98 papers that were indexed by PubMed before September 2020 were analyzed. The literature review was based on the following keywords: autoimmune diseases, cytokines, inflammation, epigenetic, polycystic ovary syndrome, immune system, hyperandrogenism, genomic imprinting, epidrug, CpG islands and DNA methylation.

**Results:** Studies have indicated that epimutations in immune cells are involved in the pathology of metabolic disorders among these patients. On the other hand, high level of some microRNAs including, miRNA-27b, miRNA-21, miRNA-155 and miRNA-103 were reported among obese patients who had hyperandrogenism. Furthermore, several reports have also confirmed significant hypomethylation of DNA in immune cells, including monocytes, B-lymphocytes, Tcytotoxic and T-helper cells.

**Conclusion:** In recent years, various epigenetic alterations have been identified among immune cells. However, still further studies are needed to find more epimutations. Comprehensive studies should investigate the exact effect of these changes on the pathology of the disorder in order to find epidrugs or environmental factors that can modify these alterations.

**Key words:** *Inflammation, Polycystic ovary syndrome, Immune system, Epigenomics*