

## Stem cell therapy; a potential strategy to improve ovarian function during premature ovarian failure

**Mahdi Mahdipour**

Tabriz University of Medical Sciences, Iran

**Statement of the Problem:** Women who have ovarian insufficiency during their reproductive age and depletion of ovarian follicles as well as hormonal dis-functions before to age 40 tending toward infertility, cardiovascular disease, endothelial dysfunction, osteoporosis, etc., known as premature ovarian failure (POF). Besides available options for treatment including hormone replacement therapy, effective and long lasting alternative is highly demanded. Stem cells have the ability to involve in various regeneration strategies including infertility. Several stem cell lineages, including bone marrow-derived, adipose and umbilical cord, stem cells have been successfully incorporated to improve ovarian function; however the efficiency of other sources for stem cells remained to be explored.

**Methodology & Theoretical Orientation:** Different alternative cell/cell-product based therapeutics have been integrated for treatment in a rat model of POF. These models are produced using chemotherapeutic agents such as cyclophosphamide (CTX) in about four weeks. Following confirmation of animal modeling using histological and hormonal analysis, stem cells from various sources are enriched and injected directly into the ovarian tissue in a surgical operation. Animals are divided into group of experimental and the control to evaluate the effectiveness of the therapy. According to the protocol, after few weeks, from every group, some animals are euthanized and subjected to histopathological and hormonal analysis. As a routine some of animals from every group is kept for mating trials to evaluate the fertility preservation after therapy.

**Findings:** Studying several sources of stem cells for POF models have revealed that, stem cells are unique type of cells and could participate in regeneration of damaged tissue and trigger folliculogenesis and restore hormonal function. Our findings further shows that the fertility status in stem cell recipient rats is preserved and normal number of offspring were born following mating and gestation similar to the control group.

### Biography

Mahdi Mahdipour received his PhD in Biotechnology from Utrecht University, the Netherlands in 2016. Currently he is acting as an assistant professor of reproductive biotechnology at Tabriz University of Medical Sciences, Tabriz, Iran. His research interest is focused on reproductive related therapeutics implementing stem cells and cell free products for regeneration and rejuvenation of reproduction.

[mahdi.mahdipour@gmail.com](mailto:mahdi.mahdipour@gmail.com)