

P124. The role of Ovarian Surface Epithelial Stem Cells (OSESC) in neo-oogenesis and cell therapy

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Introduction

The purpose of this study is the use of ovarian surface epithelial stem cells in the treatment of infertility due to oocyte and ovarian failure. This study is an attempt to accurately isolate these cells and then study their surface markers and their potencies to differentiation and growth. Finally we demonstrate use of these cells in treatment goals.

Since previous studies have also been shown, there are Germline stem cells (GSC) in ovarian surface epithelium, which have a diameter of about 4-7 microns (1). These cells were located within the epithelial cells and are derived from the Tunica Albuginea (TA) (2).

Several theories have been discussed for the formation of these cells that the newest was Mesenchymo - Epithelial transition theory proposed in 2004 by Bukovsky and colleagues (3). According to this theory, the GSCs are located in Tunica Albuginea (TA) and express mesenchymal cell markers. They pass a mesenchymal-epithelial transition process and acquire epithelial cell characteristics. Also, these cells are the only cells that express epithelial cell markers in addition to mesenchymal cell markers (4).

Then the cells are two ways to go: 1) Formation of epithelial cords that descend into depth of ovarian cortex and 2) change to mesenchymal cells via epithelial-mesenchymal transition. These mesenchymal cells express germline stem cells markers unlike other mesenchymal cells (5). At the next step these cells enter to ovarian cortex by vascular transport and located adjacent to epithelial cords and form follicular like structures (6).

There are many experiments that carried out on animal models but Majdi and colleagues approved this study on human in 2013. In their study the estrogen stimulation is used to induce folliculogenesis process, and the effect of anti-steroid drugs have clearly demonstrated (7). They also performed molecular analysis in their obtained follicular structures and the gene expression in the cultured oocyte and granulosa cells (8).

With this introduction, the aim of this study is to investigate molecular analysis of ovarian surface epithelial stem cells and use of them in the folliculogenesis and oogenesis in human and animal models.

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