Transplantation of UC-MSCs on a collagen scaffold restores ovarian function in mice with POF

yanjun yang

Abstract

Premature ovarian failure (POF) is a refractory disease; one of the most important goals of treatment is to improve fertility. In this study, umbilical cord mesenchymal stem cells on a collagen scaffold (collagen/UC-MSCs) transplanted into the ovaries of POF mice preserved ovarian function, as evidenced by increased estradiol (E_2) and anti-Mullerian hormone (AMH) levels, increased ovarian volume, and an increased number of antral follicles. Immunohistochemistry results of Ki67 and Cleaved-Caspase3 indicated transplantation of collagen/UC-MSCs promoted granulosa cell proliferation, which is crucial to oocyte maturation and follicular development. In summary, collagen/UC-MSCs transplantation may provide an effective therapeutic strategy for the treatment of POF.

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