



# Therapeutic influence of intraperitoneal injection of Wharton's jelly-derived mesenchymal stem cells on oviduct function and fertility in rats with acute and chronic salpingitis

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**ABSTRACT.** To study the effect of Wharton's jelly-derived mesenchymal stem cells (WJMSCs) on the rat salpingitis model, 50 female Wistar rats were randomly divided into one control and five model groups. Mixed bacteria were injected into the oviducts of model groups. The treated acute and chronic groups received intraperitoneal injections of WJMSCs ( $1 \times 10^6$ ) once a week for three weeks. Serum inflammation factor, collagen fiber content and oviduct-specific glycoprotein (OVGP) levels were detected in control, chronic, ex-treatment acute and chronic, and treated acute and chronic groups (N = 5 for each group). Pregnancy rate and litter size of control, chronic, treated acute and treated chronic groups were compared. Serum TNF- $\alpha$  and INF- $\gamma$  levels increased in ex-treatment

acute and chronic groups, and restored to normal in the acute treated group but not in the treated chronic group. Oviduct collagen fibers did not increase significantly before or after treatment in the acute group, but it increased in the ex-treatment chronic group and did not improve after treatment. After treatment, OVGP levels restored to normal in the acute group but reduced in the ex-treatment and treated chronic groups and chronic group. The pregnancy rate and litter size of the treated acute group recovered to normal, but in the treated chronic group and chronic model group, they decreased significantly. Thus, intraperitoneal injection of WJMSCs could recover the function of the oviduct in acute salpingitis rats, but its effect on chronic salpingitis was poor. Timely treatment of salpingitis is crucial to preserve reproductive function.

**Key words:** Wharton's jelly-derived mesenchymal stem cells; Rat; Salpingitis; Collagen Fiber; Oviduct-specific Glycoprotein