

## **P235. Endometrial stem cells homing to injured and intact endometrium**

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**Context:** Stem cells homing, the process of stem cells (SC) delivery to the site of injury, is one of the key aspect of cell-based therapies. ? competitive tropism of SC to different tissues complicates our understanding of the mechanisms of the site-specific SC recruitment and precludes the process management for therapeutic purposes.

**Objective:** To evaluate endometrial stem cells (ESC) homing to injured and intact endometrium in chronic experiment using animal model.

**Animals:** A total of 16 animals (adult female Chinchilla rabbits, 1 to 2,5 years old) were included.

**Methods:** Female Chinchilla rabbits were treated with estrogen and undergone a surgical interference to establish an experimental model of endometrial injury. The modeling procedure consisted of autologous endometrium surgical implantation to the parietal peritoneum.

**Intervention(s):** On day 7 following the modeling procedure all animals were randomized to 2 subgroups: for cell-based therapy (n=8) and placebo therapy (n=8). ESC ?btained from women's menstrual blood (5?10<sup>4</sup> cells/ $\mu$ l) were used as cell product, PBS solution was used as placebo. The substances were administered intravenously in a volume of 20-40  $\mu$ l. In 10 days after ESC or PBS infusion biopsies of endometrial implants and intact endometrium were obtained.

**Main Outcome Measure(s):** Collected tissue samples of endometrial implants (injured endometrium) and intact endometrium were evaluated by quantitative immunohistochemical analysis with mesenchymal SC surface markers antibodies (anti-CD90 and anti-CD105) using the expression index (EI) calculation method.

**Result(s):** Positive expression of CD 90 and CD105 was observed only in samples, obtained from animals treated with SC. EI of CD90 expression was 12,20 $\pm$ 0,30% in endometrial implants samples (n=70) and 6,99 $\pm$ 0,35% in intact endometrial samples (n=20). EI of CD105 expression was 7,27 $\pm$ 0,12% in endometrial implants samples (n=70) and 9,17 $\pm$ 0,36% in intact endometrial samples (n=20). There was no expression of CD90 and CD105 in samples, obtained from animals treated with PBS.

**Conclusions:** There has been observed that homing and engrafting intravenously administered ESC occurred to experimentally injured endometrium as well as to intact endometrium. The difference between EI levels of CD90 and CD105 expression in injured and intact endometrium samples (p<0,001 ? p<0,001 respectively) could be an outcome of ESC plasticity within the diverse microenvironment of injured and intact tissue.