RAMADHAN SUMARMIN. Interspecies Transplantation of Ewe Ovary to Rabbit Uterine. Under the direction of ADI WINARTO, TUTY LASWARDI YUSUF, and ARIEF BOEDIONO.

SUMMARY

The objective of this study was to evaluate the ewe ovaries post-intrauterine transplantation to pseudo-pregnant rabbit as an ovariun preservation model. Ewe ovaries were collected from local slaughter house. The experiment was concerned to the day 1 and 7 of rabbit pseudo-pregnancy to receive the ewe ovaries. After 5, 7, 9, and 11 days transplantation, the ewe ovaries were recollected. Part I of this research was to determine the morphological change of transplanted ewe ovaries and an influence of intrauterine transplantation position (four positions were differentiated from isthmus to cervix). The ewe ovaries morphological changes after transplantation were scored from 1 to 4 point. Score 1 when the intact ovarian less than 25%, score 2 if the intact ovarian in between 25%-50%, score 3 for the intact ovarian in between 50%-75%, and score 4 for the intact ovarian more than 75%. The score data were transformed into log value for ANOVA and DNMRT analysis. In order to determine the follicle development and histological changes of transplanted ovaries after intrauterine transplantation to the pseudo-pregnant rabbit, the transplanted ovaries were prepared using paraffin method and stained with Hematoxylin and Eosin (HE). To evaluate the pseudo-pregnancy status of rabbit the histological method was also done to analyze the uterine morphologies, and completed with peripheral blood progesterone hormone level (RIA method).

Part II was aimed to evaluate the ewe oocytes viability of ewe transplanted ovarian; the oocytes were collected from the transplanted ovaries by slicing method in Phosphate Buffer Saline (PBS) supplemented with 5% of Fetal Bovine Serum (FBS), and 100 IU/ml of penicillin-streptomycin. Oocytes were matured in Tissue Culture Medium (TCM)-199 supplemented with 10% FBS, 10 IU/ml of Follicle Stimulating Hormone (FSH), and 100 IU/ml of penicillin-streptomycin. Oocytes were incubated in CO₂ incubator with 5% CO₂ 38°C for 24 h. After maturation period, the oocytes were stained with 2% aceto-orcein to determine the oocytes nuclear status.

In part I: There was no different score of morphological change of ewe transplanted ovaries that done at day 1 and day 7 of pseudo-pregnancy of recipient rabbit. The result showed that 5, 7, or 9 days after transplantation had similar score on morphological changes. The intrauterine of transplantation position influenced the morphological changes score of transplanted ovaries. Position 1 had the highest score 3.9 and followed by position 2 and 3 with 3.6 and 3.1 respectively, and the lowest score which less than 2.5 was found in position 4. The morphological changes of ewe transplanted ovaries included epithelial and follicles degenerations, and aggregated protein formation. All stages of the follicle (primordial, primary, preantral, and antral follicle) were still found in all groups of treatment. The number of follicles were decreased significantly (p<0.05) except the number of primordial follicles on day 5 post-transplantation (634,7±56,88) and were not significantly differed (p<0.5) to the control group (683,7±61,55).
The endometrial glands were still pronounced in pseudo-pregnant rabbit that receive the ewe ovarian. The progesterone hormone level on pseudo-pregnant rabbit was similar to those of the pregnant rabbit.

Part II: The result showed that the collected ewe oocytes from transplanted ovaries could reach the M-II phase after in vitro maturation at P5 (35.05%) and P7 (35.24%). These values were significantly different (p<0.05) compared to the control (36.65%).

It can be concluded that: 1) The ewe ovaries of all treatment groups was still preserved at intrauterine of the pseudo-pregnant rabbit until day 9. 2) The ovaries in the nearest position to the recipient ovarian of uterine cavity were preserved better than those transplanted in the cervical area. 3) All stages of follicle in ewe transplanted ovaries were seen in all treated groups. 4) The morphological change that was found in ewe transplanted ovarian were epithelial and follicles degeneration, and the aggregated protein formation. 5) The pseudo pregnancy status of the recipient rabbit was prolonged up to the end of the transplantation period. 6) The oocytes viability was well preserved at intrauterine of pseudo pregnant rabbit.

Key word: histology, follicles, oocytes, post-transplantation, M-II