Effect of ovarian types and collection techniques on the number of follicles and the quality of cumulus-oocyte-complexes in cow

Abstract

This experiment was conducted for evaluation of bovine slaughterhouse ovary, follicles, and cumulus-oocyte-complexes (COCs) and to compare the effect of collection techniques on the recovery rate of COCs. The collected slaughterhouse ovaries was classified as corpus luteum present (CL+) and corpus luteum absent (CL-) groups. It was found that 62.5% of the ovaries collected were CL- type and 37.5% were CL+ type. For collection of COCs, blunt dissection and aspiration techniques were performed and number of follicles collected was recorded. The higher number of follicles were dissected and aspirated from CL - ovaries (11.2±1.8and 37.8±14.9, respectively) compared to CL+ ovaries 10.5±1.5and 28.3±15.6, respectively). The follicular materials collected from both techniques were observed under microscope to categorize the COCs as A (oocyte surrounded with cumulous cells homogenously), B (oocyte surrounded with cumulous cells partially), C (oocyte not surrounded at all by cumulous cells) and D (degeneration observed both in oocyte and cumulous cells). Grade A and grade B were classified as normal and grade C and grade D were considered as abnormal COCs. The result indicated that ovaries having no CL contributing more total number of COCs per ovary (6.8±1.0) and also contributing higher normal COCs (5.7±0.9) than that of ovaries with CL (6.0±2.0 and 4.5±1.5, respectively) in blunt dissection technique. But same trend of result was not found in aspiration technique. Similarly, higher percentage of COCs recovery rate was also recorded in blunt dissection (61.6±4.6% vs 16.5±4.9%, on total basis) than aspiration (48.6±2.9% vs 11.7±4.1%, on normal basis) technique. So, ovaries without CL and blunt dissection technique found more suitable for harvesting the higher number and superior quality of COCs for extending the in vitro embryo production experiment.
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