Animal Reproduction

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Embryo recovery rate in oviduct 2.5 days after IFIOT performed with different amounts of CCOs

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Resumo

Many factors may be involved in the low efficiency of IFIOT and to identify these factors, it is necessary to clarify in which point of the process the greatest losses are occurring. The aim was to evaluate the effect of the amount of CCO injected during IFIOT on recovery rate of structures and embryos in the oviduct. Were used 45 non-lactating cows, submitted an ovulation synchronization protocol (D0: P4+2mg EB; D8: 0,5mg PGF and removal P4 device; D9: 1mg EB). At 54.5±2.7h after removal the P4 device, IFIOT was performed: Control Group (CG; n=15): IFIOT with injection of 60µL of medium (TCM199) plus 10% FBS), without the presence of CCO; Group 5 (G5; n=15): IFIOT with injection of 5 CCO in 60µL of medium; Group 50 (G50; n=15): IFIOT with injection of 50 CCO in 60µL of medium. After IFIOT, cows were inseminated and received 10µg of buserelin acetate i.m. (GnRH; Sincroforte®). Between 64 - 66 hours after IFIOT, slaughter was carried out to collect the reproductive tract, with dissection and washing of the oviduct ipsilateral to the ovary that presented ovulation. Oviduct washing was performed with 3 mL of PBS and the content evaluated for the presence of structures. Were considered structures: unfertilized oocytes, zona pellucida or embryos (cleaved oocytes). To assess whether the injected and unrecovered CCO in the oviduct would be retained in the follicle after ovulation, the forming CL was dissected, and internal cavity was washed. The structures recovery rateand embryos were submitted to Pearson's correlation with the follicular diameter (FD); time interval of permanence of CCO in the injection needle and oviduct size. To calculate the recovery rate of total structures and embryos, one structure was removed in order to disregard the physiological structure from the follicle of the "ovulator" cow. The total recovery and embryos rate between groups were compared using the Mann-Whitney test ($P<0.05$). Descriptively, after oviduct washing the CG, 11 (73.3%) cows presented a structure, with 72.7% of cleaved. In G5 and G50 was recovered structures in 10 (66.7%) and 13 (86.7%) cows, respectively. Considering the presence of ≥2 structures, the recovery occurred in 7 (46.7%) and 10 (66.7%) cows, for G5 and G50, respectively. The recovery rate of total structures and embryos was similar between G5 (24%; 9.3%) and G50 (31.6%; 7.0%). Finally, in 2 (13.3%) and 7 (45.6%) animals from G5 (2.7%) and G50 (2.1%) oocytes were recovered after CL dissection. No correlation was found between the recovery rate of total and cleaved structures with any parameters evaluated: FD diameter (R=-0.1 and R=0.32); oviduct length (R=-0.11 and R=-0.17) and length stay of the oocyte on the needle (R=-0.05 and R=-0.05). These results suggest that the capacity of uptake CCO by the oviduct fimbria and/or the release COC at the time of ovulation is being compromised, regardless the amount of COC used.

Acknowledgments

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