A101 OPU - IVF and ET

Nuclear maturation kinetics of immature oocytes into preovulatory dominant follicle

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The objective was to evaluate the effect of maturation time on immature oocytes injected into preovulatory dominant follicle by intrafollicular injection of immature oocytes (IIFOI) on nuclear maturation kinetics. Immature bovines cumulus oocyte complexes (COCs; n=438) of grade 1, 2 e 3 from slaughterhouse were randomly assigned to one of three groups: (I) Control (n = 111), the oocytes were matured *in vitro* for 22 hours; (II) Mat20 (n=172) and (III) Mat30 (n=155), 30 oocytes were injected with the aid of a transvaginal guide with convex probe (7.5MHz) into preovulatory dominant follicle of previously synchronized oocyte recipient cows. In the Mat20 group, oocytes were matured in the dominant follicle for 19.8 ± 0.1 hours and in the Mat30 group for 28.3 ± 0.1 hours. In both experimental groups, cows received 12.5µg LH (Lutropin, Bioniche, Canada) at the time of IIFOI (Mat20 Group) or 10 hours after IIFOI (Mat30 Group). Oocytes from Mat20 and Mat30 groups were aspirated 20 hours after LH administration to evaluate the recovery rate. Oocytes from the experimental groups were denuded, fixed and stained by lacmoid to evaluate maturation kinetics as: germinative vesicle, metaphase I, anaphase I, telophase I, metaphase II, parthenogenetically activated and abnormal [chromosomal aberrations and degenerate (presented diffuse or undefined chromatin)]. Statistical analyses were performed by GLIMMIX procedure of SAS. Oocyte recovery rate after OPU was different between the Mat20 [52.9% (91/172)] and Mat30 [72.9% (113/155); P = 0.001]. The rate of oocytes in germinative vesicle state (P = 0.94), metaphase I (P = 0.98), anaphase I (P = 0.99) and telophase I (P = 0.20) were similar between the experimental groups. However, there was difference between groups for oocyte rates in metaphase II [Control - 81.0% (90/111)a, Mat20 - 74.5% (35/47)a and Mat30 - 41.6% (32/77)b; P = 0.001], of abnormal [Control - 5.4% (6/111)c, Mat20 - 21.3% (10/47)b and Mat30 - 48.1% (37/77)a; P = 0.001] and parthenogenetically activated [Control - 0.0% (0/111)b, Mat20 - 0.0% (0/47)b and Mat30 - 9.1% (7/77)a; P = 0.001]. In conclusion, oocytes injected and maintained in preovulatory dominant follicle for 20 hours presented nuclear maturation similar to oocytes matured *in vitro*.