

EFFECTS OF PROSTAGLANDINS E2 AND F2A ON THE IN VITRO MATURATION OF BOVINE OOCYTES

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During the time of in vivo maturation of cumulus-oocyte complex (COC), an increase in levels of prostaglandins E2 (PGE2) and F2 α (PGF2 α) in the follicular fluid of several species has been reported. Then, we aimed to elucidate the effect of PGE2 and PGF2 α during in vitro maturation (IVM) of bovine COCs on embryo development and quality. COCs obtained by follicular aspiration (3-8mm in diameter) were matured in presence or absence of PGE2, PGF2 α and PGE2+PGF2 α , and embryo development was evaluated. Then, the addition of PGE2 or PGF2 α at different moments of IVM (24, 12 or last 6 hours) was evaluated by blastocyst rate and total and differential cell counts. Subsequently, COCs were matured in absence (CTL) or presence of an inhibitor (NS398) of Prostaglandin Endoperoxide Synthase 2 enzyme, supplemented with PGE2, PGF2 α or PGE2+PGF2 α . Cumulus expansion, embryo development, total cells number and cells with fragmented DNA were evaluated. Embryo development data were analyzed by chi-square test ($P < 0.05$), cell numbers and DNA fragmentation (TUNEL) by ANOVA or Kruskal–Wallis and CC expansion by Tukey test. The results showed that supplementation of the IVM medium with PGs did not improved in vitro embryos production and quality ($P > 0.05$) regardless of the time of supplementation. However, the addition of PGE2 (25.4%, n=236), PGF2 α (20.4%, n=215) and PGE2+ PGF2 α (26.4%, n=231) to the medium treated with NS398 reduced blastocyst rate on D7 ($P < 0.05$) when compared to control (34.6%; n=254) and to only NS398 (29.9%, n= 241). Even though, no effect on cumulus expansion, total cell number, apoptotic cells were observed ($P > 0.05$). In conclusion supplementation of the maturation medium with PGE2 and PGF2 α did not improved embryonic development and quality. In addition, inhibition of PGE2 and PGF2 α synthesis also did not affect the developmental potential and quality of in vitro embryos.