

219 RETROSPECTIVE ANALYSIS OF CUMULUS-OOCYTE COMPLEX YIELD INA GYR (*BOS TAURUS INDICUS*) HERD UNDERGOING TRANSVAGINAL ULTRASOUND-GUIDED FOLLICLE ASPIRATION

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Reproduction, Fertility and Development 20(1) 189 - 189

Published: 12 December 2007

Abstract

Bovine *in vitro* embryo production (IVP) is extensively used in Brazil, associated with transvaginally guided follicle aspiration (TGFA). The good results obtained with the use of TGFA-IVP in this country are related to the ovarian physiology characteristics of zebu breeds, which include a lower persistence of dominant follicles and a greater number of follicles emerging in each follicular wave. There are, however, few reports of COC yield in these breeds in large-scale TGFA-IVP systems. The aim of this study was to analyze data on COC recovery from a Gyr (dairy zebu breed) herd in Brazil. Only pluriparous, nonlactating cows were used as donors. Follicle aspiration was performed with a portable ultrasound device, using disposable 19- or 20-gauge needles and a vacuum pressure of 80 mmHg. The follicle population before TGFA was recorded, and recovered oocytes were classified according cumulus cells layers and cytoplasm aspect. Data were analyzed by ANOVA, and means were compared by Tukey's test. Associations between variables were analyzed by Pearson's correlation method. A total of 761 TGFA sessions were performed in 54 donors, with the recovery of 8082 oocytes (10.62 ± 0.32 per session) and 6208 viable COC (8.19 ± 0.25 per session). Each donor underwent from 1 to 42 TGFA sessions. Both the number of total oocytes and viable COC were highly correlated with the number of follicles present in the ovaries (mean of 15.81 ± 0.32) in the moment of TGFA ($R = 0.86$ and $R = 0.83$, respectively, $P < 0.0001$). There was a significant donor effect ($P < 0.0001$) in the mean number of follicles in the ovaries (ranging from 4.50 ± 0.65 to 37.50 ± 2.50), oocytes (from 0.75 ± 0.48 to 30.50 ± 8.50), and viable COC (from 0.75 ± 0.48 to 25.67 ± 6.12) recovered. The absolute maximum and minimum values for these parameters were 74, 67, and 44 v. 3, 0, and 0, respectively. The TGFA order also affected all parameters evaluated ($P < 0.0001$), with a linear decrease in the number of follicles punctured ($y = -0.22x + 18.64$, $R^2 = 0.65$), total oocytes ($y = -0.25x + 13.81$, $R^2 = 0.68$) and viable oocytes ($y = -0.22x + 11.05$, $R^2 = 0.77$) recovered. This decrease was probably associated with the cumulative damage in ovarian structure, once all parameters were affected, although from the first to the second TGFA session the mean number of oocytes (20.09 ± 1.70 v. 14.08 ± 1.11) and viable COC (16.37 ± 1.27 v. 11.83 ± 1.04), but not of aspirated follicles (22.28 ± 1.60 v. 19.38 ± 1.19), were reduced ($P < 0.05$). The decline in oocyte yield was greater ($y = -0.71x + 10.45$, $R^2 = 0.95$) when considering donors undergoing TGFA continuously (within intervals shorter than 8 days). Overall bastocyst rate was 28.48%, with a significant correlation between COC recovered and embryos produced ($R = 0.64$, $P < 0.0001$). These results shows that (1) follicular population is the main characteristic affecting the number of recovered COC, and consequently IVP; (2) the great variability in follicular population and in COC recovery among donors allows the selection of animals for IVF; and (3) repeated TGFA negatively affect ovarian follicle emergence and COC recovery.

<https://doi.org/10.1071/RDv20n1Ab219>

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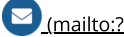
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