FACTORS AFFECTING INTRAFOLICULAR TRANSFER OF IMMATURE OOCYTES (IFIOT) RESULTS: DOES THE INJECTION MATTERS?

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Abstract

Even though intra-follicular oocyte transfer (IFIOT) represents an interesting alternative for in vivo embryos production, its efficiency is still very low. This study aimed to evaluate whether the injection, the number of oocytes injected and the injection quality affects follicle size and oocyte recovery post injection. Thirty Nellore heifers were synchronized as described by Faria et al., 2021 (Reprod Fertil Dev. 2021 Mar; 33(5):372-380) and 30 h after progesterone device removal (D91/2) the dominant follicle of all animals was measured by ultrasonography. The animals were then distributed into 4 group: 1. control (no injection- NI; n= 6); 2. IFIOT-0 (n= 9): injection of 60µl of PBS; 3. IFIOT 25 (n= 10): injection of 60µl of PBS +25 COCs and 4. IFIOT 50 (n= 11): injection of 60µl of PBS +50 COCs. The quality of injection was classified as grade 1: injection into the center of the follicle and visualization of the entrance of all structures; grade 2: injection in the follicle periphery and the visualization of structures entrance was too fast (causing a vortex effect) or too slow (almost imperceptible); grade 3: more than one perforation on the follicle and no visualization of the structures entrance. After 22 h of IFIOT, all follicles were measured and COCs were recovered by OPU. The results were analyzed by Chi-square and Proc Glimmix (SAS Institute). The injection caused a reduction (P<0.05) on the diameter and volume of follicle regardless the number of COCs injected, being both similar among the injected groups (NI= +1.37%a and +4.16%a; IFIOT-0= - 20.29%b and -49.36%c; IFIOT 25= -11.73%b and -31.23%b; IFIOT 50= -15.34%b and -39.32%b,c. No difference (P>0.05) was observed between IFIOT 25 and IFIOT 50 on the % of recovered COCs (46.53% and 37.50%, respectively). However when the quality of the injection was considered a difference (P<0.05) in recovery rate was observed among grade 1 (53.75%a), 2 (25.75%b) and 3 (6.67%c) injection irrespective of the number of COCs used. The results suggest that the injection itself affects the follicle, being probable involved in the low efficiency of the technique. In addition, more important than the number of oocytes used is the quality of the injection, which and can be considered as one of the factors responsible by the great variability on the results.

Acknowledgment

UnB, CAPES, FAPDF, Embrapa.