Relationship of antral follicle count with reproductive characteristics of embryo recipient mares

Isabela Caldato [1], Sofia Botsaris Delchiaro [1], Marcelo Marcondes Seneda [1], Fábio Morotti [1]

[1] UEL - Universidade Estadual de Londrina (Rodovia Celso Garcia Cid, PR-445, Km 380 - Campus Universitário, Londrina - PR, 86057-970)

Resumo

This study evaluated the antral follicle count (AFC) in recipient mares to relate the low and high AFC with fertility in an equine embryo transfer (ET) program. Cyclic (n=43) and acyclic (n=34) mares (n=77) aged 5 to 16 years, mixed breeds, between 320 and 460 were used as embryo recipients and evaluated by transrectal ultrasonography (A5V Sonoscape®, Domed, Valinhos, Brazil) to determine the AFC (follicles >2mm). Cyclic recipients were synchronized with the donors (D0 - ovulation day) during follicular control for artificial insemination. Having a dominant follicle (≥35mm), ovulation was induced with histrelin acetate (250µg; i.m.; Strelin®, Botupharma, Botucatu, Brazil) and hCG (1000IU; i.m.; Vetecor® Ceva, Paulínia, Brazil). Then, recipients received a single embryo 4-6 after confirmation of ovulation. Acyclic recipients received i.m. 5mg of estradiol benzoate (EB; Gonadiol®, Zoetis, São Paulo, Brazil) on the day of donor ovulation (D0), 4mg the next day (D-3 recipient; D1 donor) and 3mg (D-2 recipient; D2 donor). On D0 of the recipient (D4 donor) was applied 1500mg P4 i.m. (P4-300®, Botupharma) and repeated more 1500mg P4 on the ET day (D4-6). The parameters of AFC, age, weight, body condition scores (BCS), degree of uterine edema, CL diameter and conception rate were evaluated in all recipients. For data analysis, AFC groups were defined as low (≤11 follicles; n=43; 25 cyclic and 18 acyclic) and high count (>11 follicles; n=34; 18 cyclic and 16 acyclic). Data were analyzed by ANOVA using a mixed-effect model (AFC group, seasonality, and interaction as fixed effects; animals as a random effect and other sources of variation as covariates). The conception rate was evaluated by binary logistic regression, using the same components of the model (5%). Recipients with low and high AFC showed similarities to age (10.6±0.5 and 9.3±0.5; P=0.11), weight (403.7±3.1 and 402.1±4.6; P=0.48), BCS (3.4±0.1 and 3.2 ±0.1; P=0.19), degree of uterine edema (2.5±0.1 and 2.5±0.1; P=0.67) and CL diameter (28.7±0.7 and 26.8±0.9; P=0.23), respectively. None of these variables were affected (P>0.1) by reproductive seasonality or interactions. However, the conception rate was higher in recipients with low compared to high AFC [79.1% (34) vs 61.76% (21); P=0.01], in addition to being higher in cyclic mares (81.4%) compared to those in seasonal anestrus (58.8%; P=0.005). Furthermore, there was a tendency (P=0.06) of AFC*seasonality interaction, revealing that recipients with high AFC in anestrus (37.5%b) showed the lowest conception rate in relation to the other groups (high AFC*cyclic 83.3%a, low AFC*anestrus 77.8%a and low AFC*cyclic 80.0%a). In conclusion, AFC was not related to age, weight, BCS, degree of uterine edema, and CL diameter. However, the low AFC and the presence of reproductive cyclicity determined positive effects on the conception rate of recipients, demonstrating a relationship between fertility and AFC and reproductive seasonality in recipient mares.