

ABSTRACTS: 34TH ANNUAL MEETING OF THE BRAZILIAN EMBRYO TECHNOLOGY SOCIETY (SBTE)

Embryology, developmental biology, and physiology of reproduction

Effects of 17 β -estradiol in the abundance of transcripts for enzymes involved in the synthesis of endometrial PGF2 α in bovine females at the end of diestrus
Isabella Rio Feltrin¹, Cecília Constantino Rocha³, Igor Garcia Motta³, Amanda Guimarães da Silva³, Priscila Assis Ferraz³, Oscar Alejandro Ojeda Rojas³, Thiago Martins⁴, Guilherme Pugliesi³, Claudia Maria Bertan Membrive²

¹UNESP - Universidade Estadual Paulista Julio de Mesquita Filho - Campus Botucatu (R. Prof. Dr. Antônio Celso Wagner Zanin, 250 - Distrito de Rubião Junior - Botucatu/SP - CEP 18618-689); ²UNESP - FCAT - Universidade Estadual Paulista Julio de Mesquita Filho - Campus Dracena (Rod. Cmte João Ribeiro de Barros, km 651 - Bairro das Antas, Dracena - SP, 17900-000); ³USP - Universidade de São Paulo - Campus Fernando Costa (Av. Duque de Caxias Norte, 255 Jardim Elite Pirassununga - SP; ⁴UF - University of Florida (Gainesville, FL 32611, Estados Unidos).

In bovine females, 17 β -estradiol (17 β -E2) stimulates the synthesis of endometrial PGF2 α , however the mechanisms of this action are unknown. The aim of this study was to determine the effects of 17 β -E2 on the abundance of transcripts (PKC α , PKC β , PLA2G4, AKR1B1, AKR1C4 and PTGS2) involved in the synthesis of PGF2 α . Nellore Heifers (N=50) were synchronized by the insertion of intravaginal progesterone (P4) device (0.558g; Cronipress[®]), estradiol benzoate (1mg; Sincrodiol[®]) and D-Cloprostenol (0.075mg; Croniben[®]), both intramuscular (IM). After 6 days, D-Cloprostenol was injected, IM. After 48 hours, the device of P4 was removed and D-Cloprostenol (0.150mg) was administered IM. On this occasion, an adhesive was inserted at the base of the tail for the identification of estrus (Boviflag Red Estrus Detector - ABS Pecplan) and observations of estrus were made in the next 4 days. Only heifers identified in estrus and that ovulated (N=46) participated in the experiment. At D15 (D0 = estrus day) heifers were randomly divided into two groups: Control Group (C; 2mL of pure sesame oil, IM; N=22) or Estradiol (E; 1mg 17 β -E2 diluted in 2ml of pure sesame oil, IM, N=24). The time of administration of treatments was considered time zero. Blood samples were obtained from 0h to 7h, to measure the concentration of PGFM in D15. After treatment administration, uterine biopsies were collected at 1.5h (C1.5h, N=8 and E1.5h; N=10) or 3h (C3h, N=8 and E3h, N=11). The abundance of transcripts for the genes was determined by qPCR. In D14 to D23 the area of the corpus luteum (CL; cm²), blood flow (%) and plasma P4 concentration were assessed daily. Statistical analyzes were performed using the SAS program (version 9.4, SAS Institute Inc., Cary, NC, USA). In D18 to D20, there was a smaller area of CL in Group E (P = 0.023). Group E showed higher concentration of PGFM (P = 0.0002) at 6h (225.45 \pm 16.96 pg/mL) and 7h (285.58 \pm 33.09 pg/mL) after the application of 17 β -E2. In D16 and D17, Group E showed lower concentration of P4 (P = 0.019) in D16 (4.14 \pm 0.97 ng/mL) and D17 (2.84 \pm 0.79 ng/mL). Functional luteolysis in Group E was anticipated in 1.14 days (17.07 \pm 0.43; P = 0.006). Similarly, Group E also showed an anticipation of structural luteolysis in 1.26 days (18.42 \pm 0.33; P = 0.026). Among the treatment groups, abundance did not differ for the PKC α (P = 0.79), PKC β (P = 0.17), AKR1B1 (P = 0.34) and PTGS2 (P = 0.22) genes. There was a treatment effect only for the transcripts PLA2G4 (P = 0.03) and AKR1C4 (P = 0.05), however, the abundance of both decreased in Group E at 1.5 and 3.0 h after 17 β -E2 administration. It is concluded that the application of 17 β -E2 at D15 promoted an increase in PGFM concentrations and the anticipation of functional and structural luteolysis in Nellore heifers; however, this increase was not associated with an increase in the gene transcription of the studied proteins. Acknowledgement: FAPESP, CAPES