Proceedings of the 28th Annual Meeting of the Brazilian Embryo Technology Society (SBTE), August 14 to 17th, 2014, Natal, RN, Brazil. Abstracts.

A171 Embriology, Biology of Development and Physiology of Reproduction

## Follicular concentration of IGF-I and insulin in the postpartum of Girolando crossbred cows

**B.C. Carvalho[1], G.B. Santos[2], F.Z. Brandão[2], F.C. Varago[3], M.W. Vargas[3], L.S.A. Camargo[1], F.S. Machado[1], M.M. Campos[1], J.G.V. Grázia[4]**

[1]Embrapa Gado de Leite; [2]Universidade Federal Fluminense; [3]Universidade José do Rosário Vellano - Unifenas; [4]Universidade Federal de Juiz de Fora.

**Keywords**: follicular wave, postpartum period, ultrasound.

The negative energy balance that occurs in the postpartum period of dairy cows determines endocrine and metabolic changes that affect follicular fluid composition and can impair the cow fertility. The aim of this study was to evaluate the follicular fluid concentrations of insulin and IGF-I in the postpartum of Girolando cows. The experiment was conducted at Embrapa Dairy Cattle Experimental Station, located in Coronel Pacheco, MG. Twenty-seven primiparous Girolando cows with 442.34 ± 2.45 kg of body weight and body condition score of 3.04 ± 0.01 (1-5 scale) were evaluated. Eight 3/4 Holstein x Gir (HG) and seven 7/8 HG were fed a high energy diet (1.93 Mcal/kg dry matter (DM) of net energy for lactation and 0.168 kg of crude protein/kg of DM) and seven 3/4 HG and six 7/8 HG were fed a low energy diet (1.69 Mcal/kg of DM of net energy for lactation and 0.170 kg of crude protein/kg of DM). The diets were based on corn silage, grounded corn and soybean meal. The fluid of the dominant follicle of each cow was collected at 19, 33, 47 and 61 days postpartum. The follicular wave was synchronized by the ablation of follicles greater than 6mm present in the ovaries. On the fifth day after the synchronization, the largest follicle was aspirated for fluid recovery (Vet® DP 2200, Mindray, Shenzhen, China) equipped with follicular aspiration guide and vacuum pump (WTA, Cravinhos , Brazil). The recovered fluid was centrifuged at 300g for 10min and immediately stored at - 20°C until analysis of the concentrations of insulin and IGF-I, using commercial radioimmunoassay kits (Immunotech®, Prague, Czech Republic). The concentrations of insulin and IGF-I were analyzed by ANOVA using proc GLM of SAS, considering the effects of diet, cross, days postpartum and their interactions. Insulin concentration was higher ($P = 0.0575$) in the follicular fluid of cows fed high energy diet (6.60 ± 1.01 µIU / mL ) compared to those fed low energy diet (4.72 ± 0.54 µIU/mL). There was an interaction ( $P = 0.004$ ) between diet and breed on the concentration of IGF-I. The 3/4 HG cows fed with high energy diet had higher follicular concentration of IGF-I (148.5 ± 12.5 ng/mL) than those fed low energy diet (87.24 ± 12.98 ng/mL) and cows 7/8 HG fed diets high (87.07 ± 8.05 ng/mL) or low energy (83.14 ± 8.92 ng/mL). Over the postpartum period, there were increased ($P < 0.0001$) concentrations of IGF-I between days 19 and 33 (75.11 ± 12.73 ng/mL, 77.44 ± 9.33 ng/mL, respectively) and days 47 and 61 (112.44 ± 13.20 ng/mL and 132.04 ± 11.67 ng/mL, respectively). The endocrine changes in follicular concentrations of insulin and IGF-I indicate that these hormones are important for follicle development and fertility in postpartum cows.

**Financial support**: Fapemig.