Acid-base-parameters and steroid concentrations in preovulatory follicles and plasma of lactating dairy cows with spontaneous and synchronized estrus or follicular cyst

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Abstract:

The study aimed to compare the acid-base balance and steroid concentrations between follicular fluids (FF) of preovulatory follicles derived from a spontaneous (SE), synchronized estrus (IE) and follicular cysts (CYS) and between FF and blood in dairy cows. Forty two dairy cows were included in this study. The animals were allocated into three groups, SE (n = 23), IE (n = 11) using GnRH at Day 0 and Day 9, PGF2α at Day 7 and the animals with CYS (n = 10). The follicular fluids (FF) were aspirated from the cyst / preovulatory (≥ 15mm) after SE and after second GnRH dose in IE by transvaginal ultrasound-guided ovum-pick-up technique. Blood samples (BL) were collected in herparinized vacutaner tubes. The oxygen tension (pO2) in FF of IE was higher (P < 0.05) than in SE and CYS groups. There were negative correlations (P < 0.001, r = -0.89) between FF and blood pO2. The carbon dioxide tension (pCO2) and lactate in FF of CYS was higher (P < 0.05) than in SE and IE groups. There were negative correlations (P < 0.01, r = -0.73) between blood and FF pO2. Estradiol-17β concentration in preovulatory follicles and plasma of the SE was higher (P