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# The bovine clinical endometritis and the ratios of serum energy metabolites during the transition period

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## Abstract

Uterine diseases are common problem that influence the reproductive output in dairy farm. Different factors include metabolic disturbances may affect the uterine defense mechanism and contribute at postpartum uterine disease occurrence. The routine metabolic profile is measurements of net values of non-esterified fatty acids (NEFA), β-hydroxybutyric acid (BHBA), and glucose (Glc) in cow serum. The present study aimed to look at the ratios of the energy metabolic products during the transition period and investigate their relationship with bovine clinical endometritis. The weekly serum samples were collected from 100 dairy cows during the transition period (2 weeks prepartum to 3 weeks postpartum). In the clean test (Day 30 postpartum), 16 cows were selected, and assigned in a case-control repeated measure design into two groups as clinical endometritis (CE: n=8) or healthy cows (n=8). The respective serum samples of the cows were assayed for NEFA, BHBA, and Glc. All the measurement units were converted to mM/L and the ratios were calculated. The trend of changes in the ratios of NEFA to BHBA was in a steady state in healthy cows during the transition period, while it raised at the time of parturition in the CE group ($P<0.05$). While the significant increase in NEFA to Glc ratio started after parturition in healthy cows, it was begun to increase before parturition in CE. The trend of changes in the energy metabolite ratios during the transition is different in CE compared to healthy dairy cows.

**Keywords**; Bovine, Clinical endometritis, Energy metabolites, Ratio

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