

Influence of somatotropin on level of insulin, T_3 , T_4 , TSH, BST in blood serum of dairy cows at various levels of crude protein in feed

J Siget, A Sommer, P Petrikovic

Research Institute of Animal Production Nitra, Hlohovská 2, 94992 Nitra, Slovakia

Changes in levels of BST hormones, insulin, T_3 , T_4 and TSH in blood serum of dairy cows on 6th, 7th and 8th day after BST application were studied. The animals were fed 12, 14 and 16 % levels of crude protein in dry matter in feed rations at the same time.

The experiment was performed on 6 dairy cows with catheters in *vena jugularis*. The system of Latin squares for 2 influences (A group with and B without rBST application) and 3 periods (12, 14 and 16 % levels of crude protein) was used. A group cows were injected subcutan with 500 mg rBST 6 days before the beginning of experiment. Five blood samples per cow/day were taken, one of them before feeding and others four in two hour intervals after the feeding. There were 15 samples from each dairy cow during experimental period (three days of sampling).

On average, the concentration of endogenous BST rose by 2.03 ng/ml ($P < 0.01$) in all protein levels of group A compared with group B. There were observed no significant changes caused by feeding 12, 14 and 16 % protein levels. TSH concentration rose statistically significantly by 0.47 μ U/l after the BST application with 12 % level of crude protein only. There were noticed no changes in

concentration of T_3 , T_4 and insulin after the BST application, however, the insulin concentration was statistically significantly higher by 6.21 IU/ml when feeding 12 % level of crude protein. BST concentration in the group B decreased to 1.5 - 2 ng/ml on all levels of crude protein 2 hours after feeding, then it increased gradually up to 3 - 3.4 ng/ml (6 hours after feeding). BST level in group A was higher by 0.5 ng/ml 2 hours after feeding, and it decreased to the level noticed before feeding after 4 hours (4 - 4.5 ng/ml) then it decreased down to 3.2 ng/ml (8 hours after feeding). The significant BST changes in relation to the time before and after feeding were observed in group B only. The concentration of insulin rose from 8 - 16 IU/ml to 18 - 25 IU/ml in both groups during the first 4 hours after feeding then it decreased gradually to the level 15 - 20 IU/ml (8 hours after feeding).

The concentration of endogenous BST increased significantly under the influence of rBST application on all levels of crude protein, however, insulin and TSH were significantly increased only with 12 % level of crude protein. We noticed no the significant changes in the levels T_3 and T_4 under the influence of the application rBST and at various levels of crude protein.