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Blood inflammatory indices in goats around kidding

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ABSTRACT

The transition period of goats is often characterized by serious metabolic problems, mainly before parturition. These troubles are related to negative energy balance status, however all causes are not totally defined. To improve the knowledge about pathogenesis in this phase we have monitored the changes of some blood indices of lipomobilization and inflammation. Six blood samples were collected from 10 primiparous and 25 multiparous "Camosciata delle Alpi" goats after morning milking. Samples were collected around 20 and 7 days before parturition and on days 0, 3, 6 and 12 of lactation. Albumin, total protein, haptoglobin, ceruloplasmin, total cholesterol, NEFA, β -OH-butyrate (BHB), Ca, Mg and Zn were determined. Goats were grouped according to their BHB level before parturition: low (≤ 0.6 mmol/l; LOB), average (0.6-1.09; AVB) and high (≥ 1.09 mmol/l; HIB) level. Furthermore, the AVB group was divided according to plasma haptoglobin level before parturition: low (< 0.5 g/l) or high. The statistical evaluation was carried out comparing 4 groups. Nearly all the primiparous goats were allocated in LOB group (55 vs. 19% of goat of other groups), but they had the highest milk yield (n.s.). 69% of goats had typical peripartum troubles around kidding, but the prevalence was higher in HIB (100%) and AVB (65%) groups vs. LOB (44%). Goats with higher BHB before parturition had higher haptoglobin levels before as well as after parturition ($P < 0.01$). Ceruloplasmin was higher in HIB vs. LOB group, but only after parturition ($P < 0.05$). Conversely, Ca ($P < 0.05$) and Mg (only sometime significantly) were lower in HIB vs. LOB group around parturition. Total protein level was significantly higher in LOB group in comparison to HIB, from parturition to 6th day after ($P < 0.05$). AVB goats showed analogous changes of LOB or HIB, according to their levels of haptoglobin. Cholesterol and albumin showed a tendency of higher levels after kidding in groups with low haptoglobin (only sometime in significant way). Our results suggest that an increase of inflammatory indices before kidding could support the typical troubles, with higher blood ketone bodies, in goats around parturition.

Feeding behaviour of fallow deer under semi-intensive breeding conditions

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ABSTRACT

Wild fallow deer present a great “trophic plasticity” and the ability to utilize different resources in relation to season, year and environment. A trial was carried out in order to assess the influence of farming conditions on fallow deer feeding behaviour. Twenty fallow deer were kept in 4 hectares natural pasture, divided into 8 paddocks for monthly rotational grazing. Food supplementation was given during winter time. Feeding behavioural data were collected by Instantaneous Sampling for a nine month period, at weekly four fixed time intervals. Ethological data were grouped in two datasets: Dataset 1 including alarm, standing, resting, moving, feeding and ruminating behaviour to assess daily and seasonal variations; Dataset 2 including feeding behaviour in relation to type of food intake (leaves, shrubs, acorns or grass). Data were statistically analysed by Principal Component Analysis (PCA) and Correspondence Analysis (CA) by SAS®. Main results indicated seasonal differences in feeding time budgets. Farm fallow deer spent more time feeding in winter (37% out of the total 8 hour daily observation period) than in spring (22%), but maximum feeding time was recorded in autumn (49%), when no feed supplements were given. Independently from season, feeding time variations seemed not to influence time spent moving, whereas standing (24%) and resting (20%) times increased when food integrations were given (winter period). With PCA, three factors were extracted which accounted for 80% of the common variance. Feeding behaviour belonged to the first factor, resting and standing showed high opposite loadings on the second, whereas moving was mainly represented on the third one. CA showed seasonal feed preference variations. Farm fallow deer increased grass (93%), shrubs (4%) and leaves (3%) intakes during spring time, as well as in autumn (grass 95%, shrubs 5%). Acorns and shrubs represented the first choice food during winter. Fallow deer seem to maintain their great adaptability to feed on different environmental resources also under farming conditions. However, in all seasons they showed the preference to feed on grass, followed by other food resources.