

Studies on the metabolic state of mares and their foals during an early period after birth

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Fifteen trotter mares and their foals were used in this study. Blood was collected immediately after first sucking (t1; 2.37 ± 1.36 hrs. p.n.) as well as 6 (t2) and 12 (t3) hours p.p./p.n.. In the sera concentrations of total protein (TP), albumin (Alb), α -, β - and γ -globulines (...-Glob), urea, glucose, fructose, lactate, free fatty acids, triglycerides (TG), phospholipids, cholesterol, α -, β - and pre- β proportion of lipoproteins (...-LP%), α -tocopherol (VE), β -carotene, total retinol (VA), bilirubin, calcium (Ca), magnesium, inorganic phosphorus (P_a), sodium, potassium, chloride and the activity of glutamic acid dehydrogenase, gamma glutamyl transferase, aspartate aminotransferase and creatin kinase (CK) were determined. It seems that most parameters in the mares were not clearly effected by birth and also within 12 hrs. p.p. there were predominantly no marked alterations. Lactate decreased and CK increased significantly but within the normal range. β_2 -Glob were generally low, possibly why the mammary gland selectively concentrates proteins a.p.. The striking low Ca and P_a on t1 and their further significant decrease caused no clinical signs. Following studies should consider ionised Ca. Untypical for horses on pasture, like the mares in this study, was the low β -carotene. VA and VE were normal. In foals all protein fractions, urea and glucose increased significantly after sucking while fructose decreased. TG and β -LP% on t1 were higher than in the mares and additionally rose until t3. In general blood lipids were more similar to LDL- than to adult HDL-type animals. VA and VE were much lower than in the dams and only VE increased after sucking. β -carotin was not detectable. Ca but not P_a was striking low on t1 and rose markedly until t3. Bilirubin and all enzymes increased p.n. but within the normal range.