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Biochemical composition of amniotic fluid in normal puppies at term of pregnancy: preliminary data

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Abstract

The full knowledge of the normal foetal fluid composition could be useful in the dog for the better management of newborns. The aim of the present study was to define the biochemical composition of amniotic fluid of puppies born by elective Caesarean section (CS) at term of pregnancy. The study enrolled 24 purebred bitches, classified into small size (<10 kg) and large size breeds (>20kg). All the bitches were healthy and clinically monitored from mating until parturition. For all the bitches, an elective CS at term of pregnancy was performed (Meloni *et al.*, 2014). For each puppy, the amniotic fluid was collected, immediately centrifuged and frozen at -20° C until analysis for Albumin, Amylase (AMY), Total Bilirubin, Cholesterol (CHOL), Creatine Kinase (CK), Alkaline Phosphatase, Transaminases, Lactate Dehydrogenase (LDH), Triglycerides, Urea, Glucose (Glc), Total Proteins, Creatinine, Lipase, Electrolytes, and Globulins. Data were analysed by Analysis of Covariance to verify the possible effects of parity, breed body size and newborn gender on amniotic biochemical composition. A total of 69 amniotic fluid samples were collected. The amniotic (mean ± standard deviation) and range (min-max) values for each parameter were defined. LDH value ($p < 0.01$) and CK activity ($p < 0.05$), as well as Glc concentrations ($p < 0.0001$) were negatively influenced by the parity. AMY activity was significantly ($p < 0.05$) higher in large sized (44.2 ± 20.87 U/L) respect to small sized dogs (30.3 ± 19.89 U/L), while a lower ($p < 0.05$) CHOL amniotic concentrations were found in small sized (3.0 ± 2.71 mg/dL) if compared to large sized (3.9 ± 2.93 mg/dL) dogs. Gender of the newborn did not influence the amniotic biochemical composition. The preliminary results of this study the suggested that, in dogs, some amniotic parameters could be influenced by breed body size and by parity.

References

Meloni, T., Comin, A., Rota, A., Peric, T., Contri, A., Veronesi, M.C., 2014. IGF-I and NEFA concentrations in fetal fluids of term pregnancy dogs. *Theriogenology*. 8, 1307-1311.