HAEMATOLOGICAL PROFILES OF CALVES BELONGING TO HERDS WITH BOVINE NEONATAL PANCYTOPENIA HISTORY IN AND AROUND WALLONIA (BELGIUM).

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Bovine Neonatal Pancytopenia (BNP) is a syndrome of newborn calves has been noticed in Europe since 2006. The BNP affects calves without breed or gender predisposition, the incidence is generally between 1% and 5%, but the mortality rate is around 90%. Affected calves exhibit spontaneous external bleedings, petechiae and ecchymosis on serosal and mucosal surfaces, melena or haematochezia, thrombocytopenia, occasionally hyperthermia, progressive prostration and sudden death. The haematological profile is characterized by a progressive and marked panleukopenia, a severe thrombocytopenia, normocytic and normochromic anemia due to the acute blood loss. Necropsy reveals petechiae and ecchymosis all over organs and tissues, internal haemorrhages, subdural and vascular haematomas. A partial or total destruction of the red bone marrow (panmyelophthisis) can be observed by the histopathology of the bone marrow. By now, epidemiological data collected in European case logs implied the vaccination scheme of case dams with one specific BVD inactivated vaccine (PregSure©BVD, Pfizer Animal Health) as the prevalent event. This vaccine, growth on a bovine kidney cell line (MDBK), is strongly adjuvated, and able to induce both antigen-specific antibodies and T-cell response. It also elicits specific allo-immune antibodies in the dam that, after transfer to the calf by colostrum ingestion, bind to blood cells and to bone marrow stem cells, inducing cytophagocytosis of the opsonised cells by the reticulo-endothelial system.

The objective of the present study was to verify the hypothesis of subclinical BNP cases, by random sampling and haematological analysis in different herds with BNP history, in order to obtain a better epidemiological picture of this disease. Blood samples of 100 calves selected in 12 different farms located in and around Wallonia (southern Belgium), between September 2008 and November 2012 were collected from the jugular vein into EDTA tubes. This cohort included 44 Belgian blue, 39 Holstein-Friesian, 14 cross-bred, 3 Blonde d'Aquitaine calves without wide differences in gender amongst the different breeds (57% females and 43% males). They were less than three weeks of age (average 14,8 ± 4,02 days of age). Seventy-five calves has received the colostrum of their own dam and 25 the colostrum of other dams from the same herd. The parity of the dams was on average 2 ± 2,7. Eighty-two percent of the dams were vaccinated with PregSure©BVD. Blood cell count, including number of white blood cells and thrombocytes, was performed using two electronic cell counters (Cell-

Dyn Abbott 3500 and Beckman Coulter LH750). The haematological analysis revealed three different haematological profiles according to the clinical status of the calf: not-BNP or healthy calves (83%), clinical BNP calves (12%) and sub-clinical BNP calves (5%). The statistical analysis of the mean of each haematological parameter has been performed by a T-Student unpaired test with assumed different variances. The comparison between the average of the red blood cell count in subclinical BNP-calves and in not-BNP calves has not shown significant differences ($p>0.05$), which could explain the absence of clinical signs. We herein provide the evidence of subclinical BNP cases in herds with a Bovine Neonatal Pancytopenia history.