



# Mononuclear cells counting at different moments of equine bone marrow aspiration

Fernanda Cristina M. Barussi<sup>[a]</sup>, Fernanda Z. Bastos<sup>[a]</sup>, Lidiane Maria Boldrini-Leite<sup>[b]</sup>, Felipe Yukio I. Fragoso<sup>[b]</sup>, Amanda P. Crescencio<sup>[b]</sup>, Alexandra Cristina Senegaglia<sup>[b]</sup>, Paulo Roberto S. Brofman<sup>[b]</sup>, Pedro Vicente Michelotto Junior<sup>[a]</sup>

<sup>[a]</sup> School of Agricultural Sciences and Veterinary Medicine, Pontifical Catholic University of Paraná (PUCPR), Curitiba, PR – Brazil

<sup>[b]</sup> School of Medicine, Pontifical Catholic University of Paraná (PUCPR), Curitiba, PR - Brazil

## Abstract

The cell therapy is used for different horse diseases, and bone marrow-derived mononuclear cells (BMDMCs) are a common cell type applied for this therapy obtained by bone marrow aspiration. The aim of this study was to demonstrate the number of BMDMCs on initial and final moments of bone marrow aspiration in the equine sternum. Methods: Two horses were used, the first one (A1) was 18 years old and the second one (A2) of 21 years old, both with normal physical examination. They were sedated with acepromazine (0,035 mg/kg, IV), followed by 10% xylazine (0,35 mg/kg, IV) and pethidine hydrochloride 50mg/mL. The sites of aspiration at the fourth and fifth sternbrae were cleaned, shaved and anesthetized with 2% lidocaine, followed by antiseptis undertaken using povidone-iodine. Bone-marrow was aspirated using Bone Marrow Harvest Needles, 11ga x 4in, Angiotech in 15 syringes containing IMDM and heparin, for each site, on two different sites (fourth and fifth sternbrae) for each animal. The syringes with samples were kept on ice. Aliquots of 500µL of the first and final syringes, obtained from each site, were separated for the counting of the total cell number (TCNC) performed mechanically using a Cell-Dyn 1300 counter of Abbott Laboratories. Statistical analysis was performed using the paired t test, considering  $p < 0.05$ . Volumes of 458.5 mL and 408 mL of bone marrow was retrieved from aspirations of A1 and A2, respectively. After the counting,  $51,48 \times 10^6$  cells were obtained per ml of bone marrow collected an average for first aspirations, and  $7,22 \times 10^6$  in the last aspirations. We found a significant difference between the first and the last aspiration in each collection point bone marrow of the sternum,  $p < 0.05$ . There was a significant difference between the mean aspirations.

Ethics Committee: CEUA. Protocolo 788 em 06 de junho de 2013.