



2nd International Conference on Tissue Science & Regenerative Medicine

August 26-28, 2013 DoubleTree by Hilton, Raleigh, NC, USA

The hematological effects of an intravenous injection of peripheral blood-derived mesenchymal stem cells (Veno-Cell®)?

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Mesenchymal stem cells (MSCs) have been reported to have homing capacities and immunomodulating effects *in vitro*. However, there are no reports on their effect on the animal's hematological status. Therefore, MSCs were isolated and characterized from a 4-years-old donor horse after having tested his blood on a wide range of transmittable diseases. Then, 6 elderly horses (13- to 15-years-old) received a single injection into the jugular vein (3 treated + 3 control). Multiple blood samples were taken at different time points at the same time of the day: 1 week before and immediately before the intravenous MSCs (Veno-Cell®) injection (the average = T_0) and 1 day (T_1), 1 week (T_2), 3 weeks (T_3) and 2 months (T_4) after the treatment. In all the patients, same changes were noticed in their blood after the injection: thrombocytes and cortisol values significantly increased; glucose and insulin-like growth factor type-I (IGF-I) significantly decreased. At T_2 , thrombocytes and glucose levels were normalized, however, the IGF-I level was still decreased and at this time point insulin level decreased as well. The rise in cortisol remained significantly evident for 2 more months. The present study is the first to report the influence of allogenic MSCs on different hematological parameters in horses.

Biography

Sarah Y. Broeckx, veterinarian, graduated from the Faculty of Veterinary Medicine, Ghent University (Belgium) in 2010. Then, she worked at the Department of Obstetrics, Reproduction and Heard Health of the Faculty of Veterinary Medicine, Ghent University, where she generated several papers concerning equine stem cell research. Since 2012, she became the Quality Manager of Global Stem cell Technology, an organization which is specialized in regenerative therapies for horses.