PERIBULBAR BLOCK IN EQUINE ISOLATED HEADS. DEVELOPMENT OF A SINGLE NEEDLE TECHNIQUE AND TOMOGRAPHIC EVALUATION

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Peribulbar block (PPB) has been used in humans as a safer alternative to retrobulbar block (RBB). PBB, depends on the diffusion of anaesthetic solution into the muscle across the connective tissue and it is performed introducing the needle within the extraconal space. The advantages are fewer complications and palpebral akinesia. In Veterinary Medicine few studies describe this technique in dogs (Shilo-Benjamini et al., 2017) and cats (Shilo-Benjamini et al., 2013). The aim of the study is to determinate, in equine specimens, feasibility of inferior PBB with single needle injection, by using contrast medium (CM), and to evaluate thought Computed Tomography (CT) the distribution of the injected volume and regional anaesthesia likelihood. PBB was performed in 10 orbits. The mixture injected consisted of 20 ml of physiological solution and iodinated CM at 25%. Each periorbital area underwent three CT scans. A basal acquisition to assess the needle position before the injection, a second and third scan were performed immediately after injection, and after application of pressure on the periorbital surface area to promote CM diffusion. The injectate distribution at the base and within the extraocular muscle cone (EOMC) and around the optic nerve was evaluated and scored based on Shilo-Benjamini's work of 2017. The mean minimum distance between the tip of the needle and the optic was 2,23 mm ±0,2. The mean volume distribution before pressure application was 23.56 cm^3 ± 2.58 and after pressure application was 27.56 cm^3 ± 4.8. The CM median distribution around the optic nerve at the base of the EOMC was of 117° prior pressure and 189° after pressure. The CM distribution within the EOMC was present in 1 orbit prior pressure and in 3 orbits after pressure. The CM distribution at the base of EOMC was considered unlikely to provide regional anaesthesia in 2 orbits, possible in 3 orbits and likely in 5. In the present study, intraconal distribution was not consistent. For this reason, the likelihood of achieving regional anaesthesia was evaluated at the EOMC base where through the optic foramen the oculomotor, trochlear nerve, ophthalmic branch of the trigeminal nerve, and the abducens travel to reach the orbit together with the optic nerve. Whereas the maxillary branch of the trigeminal nerve passes through the foramen rotundum (Carastro 2004). Therefore, despite the lack of intraconal distribution if the EOMC base had good distribution then it was considered likely to provide regional anaesthesia. This approach needs to be evaluated in clinical trials to assess its feasibility and effectiveness in locoregional anaesthesia; moreover, further investigations on equine PBB are mandatory with higher volumes of injectate and different approaches.

(1) Shilo-Benjamini, Y., Pascoe, P.J., Wisner, E.R. et al. 2017. A comparison of retrobulbar and two peribulbar regional anesthetic techniques in dog cadavers. Vet Anaesth Analg 44, 925-932. (2) Shilo-Benjamini, Y., Pascoe, P.J., Maggs, D.J. et al. 2013. Retrobulbar and peribulbar regional techniques in cats: a preliminary study in cadavers. Vet Anaesth Analg 40, 623-631. (3) Nouvellon, E., Cuvillon, P., Ripart, J., Viel, E.J. Anaesthesia for cataract surgery; Drugs and Aging, 2010; Vol. 10. issue 1. (4) Carastro SM (2004) Equine ocular anatomy and ophthalmic examination Vet Clin Equine 20, 285-299.