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Peribulbar block in equine isolated heads. Development of a single needle technique and tomographic evaluation

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Abstract

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 (Ahn J. *et al.*, 2013) and cats (Shilo-Benjamini *et al.*, 2013). Based on literature 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 around the optic nerve (degrees). PBB was performed in 6 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 needle position was measured from the tip to the optic nerve with a mean distance of 2,27 mm ± 0,28. The mean volume distribution before pressure application was 23,56 cm3 ± 2,58 and after pressure application was 27,56 cm3 ± 4,8. The CM distribution, was defined (Nouvellon *et al.*, 2010) "successful" in 4 orbits (>270°) and "inadequate" in 2 orbits (<180°). The present study demonstrates feasibility of inferior PBB by single injection in horses for its simple and practical execution. Inferior PPB is a potential alternative to systemic administration of neuromuscular blocking agents for ophthalmic surgery. However, this approach needs to be evaluated in clinical trials to assess its feasibility and effectiveness in clinical practice for standing procedures.

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