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The effect of flunixin meglumine, firocoxib and meloxicam on the uterine mobility of equine embryos

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ABSTRACT

Embryo mobility occurs as a result of prostaglandin production by the embryo and endometrium, promoting uterine smooth muscle contractions, which propels the embryonic vesicle through the lumen. Non-steroidal anti-inflammatory drugs (NSAIDs), as flunixin meglumine, are routinely used in equine medicine and can alter the conceptus mobility if applied in early pregnancy, which may impair maternal recognition of pregnancy. The objective of this study was to evaluate and compare the effect of flunixin meglumine (FM; 1.1mg/kg IV), firocoxib (FIRO; 0.2mg/kg PO), and meloxicam (ML; 0.6mg/kg, IV), on the embryo mobility. Thirty mares were divided into three groups (n=10 per treatment). After the pregnancy diagnosis on day 12 after ovulation, the embryo mobility was evaluated by transrectal ultrasonography every five minutes for one hour in order to visualize the location of the embryo. In all mares, three evaluations were performed: immediately before treatment (pre-treatment), after NSAID administration and 24 hours after treatment. In group FM, embryo mobility decreased, from 5.8 ± 0.3 movements/hour (m/h) to 2.3 ± 0.5 m/h ($p<0.05$) and, after 24 hours the values were similar to the pre-treatment evaluation (5.9 ± 0.2 m/h). Likewise, ML treatment caused a decrease of embryo movements, from 5.9 ± 0.3 to 1.9 ± 0.3 m/h ($p<0.05$), 24 hours after treatment values were 5.7 ± 0.4 m/h. Treatment with FIRO did not interfere with embryo mobility (5.7 ± 0.4; 5.8 ± 0.3 and 5.6 ± 0.3 embryo movements in the first, second and third evaluation, respectively). In conclusion, FIRO was the only NSAID that did not alter the embryo mobility and may be the safest NSAID for use in early pregnant mares.

Keywords: embryo mobility, maternal recognition of pregnancy, nonsteroidal anti-inflammatory, prostaglandin.