Imipramine and xylazine treatment does not induce ejaculation in alpacas

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In stallions, semen can be collected without copulation (ex copula) through the means of pharmacologically-induced ejaculation with imipramine and xylazine. A preliminary study in llamas revealed that imipramine and xylazine treatment induced ejaculation in 80% of attempts. The objective of the present study was to determine if imipramine and xylazine treatment would induce ejaculation in alpacas. Intact male alpacas (n=11) were used with ages ranging from 2-10 years (6.5±2.6 years). Two males had sired crias, seven males had never been used for breeding and the reproductive history of two males was not known. Animals were sheared and body weights were determined. Right jugular venous catheters were placed to facilitate imipramine and xylazine administration. A Whirl-pak® (Nasco, Ft. Atkinson, WI, USA) bag was taped over the preputial opening prior to each treatment and removed 10-20 minutes following treatment. Seven treatment protocols were evaluated: (1) saline (control); (2) only xylazine (0.1 mg/kg); (3) only xylazine (0.2 mg/kg); (4) only imipramine (1.0 mg/kg); (5) imipramine (1.0 mg/kg) followed ten minutes later with xylazine (0.1 mg/kg); (6) imipramine (2.0 mg/kg) followed ten minutes later with xylazine (0.1 mg/kg); and (7) imipramine (1.0 mg/kg) followed twenty minutes later with xylazine (0.1 mg/kg). Each treatment protocol was repeated two or three times in each animal. For small volume (<0.5 mL) samples collected within the Whirl-pak® bag after each treatment, impression smears were made on glass microscope slides and the presence of spermatozoa was determined following Diff Quik® (Siemens Healthcare Diagnostics, Deerfield, IL, USA) staining. When urination occurred, samples were centrifuged and Diff-Quick® stained sediment samples were evaluated microscopically. Preputial secretions (pH ranged from 7 – 9) were present from at least one male following each treatment (including control) except for the imipramine (1.0 mg/kg) and xylazine (0.1 mg/kg) protocol in which one of the three replications did not yield preputial secretions in any of the males. No spermatozoa were in any of the samples containing preputial secretions. Few spermatozoa were present in two urine sediment samples from one male following two of the three treatment replications with imipramine (1.0 mg/kg) and xylazine (0.1 mg/kg). In another male, few spermatozoa were present in one urine sediment sample following one of the three treatment replications with imipramine (1.0 mg/kg) and xylazine (0.1 mg/kg) and following one of the two treatment replications with only xylazine (0.2 mg/kg). Spermatozoa were not present in urine sediment samples from these males following other treatment protocols. It is not clear why ex copula ejaculation could not be induced in these sexually mature alpacas but may have resulted from differences in drug compounding of imipramine between the two camelid studies.

Keywords: Alpaca; ex copula ejaculation; imipramine; spermatozoa; xylazine

References:
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