

CLINICAL EVALUATION OF EFFICACY AND SAFETY OF CALCIUM CHLORIDE ASSOCIATED WITH ETHYL ALCOHOL AND LIDOCAINE FOR NON-SURGICAL STERILIZATION OF SEXUALLY MATURE CANINE ADULTS

Kuladip Jana^{1*}, A. Singha² & P. K. Samanta²

¹Division of Molecular Medicine, Bose Institute, Kolkata, West Bengal, India, ²Department of Medicine, Surgery & Radiology, West Bengal University of Animal and Fishery Sciences, Kolkata, West Bengal, India

The objective of the present study was to evaluate the efficacy and safety of calcium chloride associated with ethyl alcohol and lidocaine for the neutering of sexually mature canine males. Twenty four sexually mature male mongrel dogs (1-4yrs old) were equally divided into two groups, control group (n=12) received a single injection of an isotonic saline solution whereas, the treated group (n=12) were given calcium chloride solution (27 mg or 1.4 mEq of elemental calcium per mL) in 70% ethyl alcohol and 1% lidocaine into each testis based on a dose (0.2-1.0 ml) selected according to the testicular width. Clinical examination, testis width, haematology, hepatic & renal functions, serum testosterone, gonadotropin, cortisol concentrations and libido, were assessed before treatment and then at 1 month intervals until castration (6 months after treatment). There was no post treatment scrotal biting or licking but a transient testicular swelling in both treated and control dogs were evident during the first week after injection. There were no significant differences between the groups in respect of clinical findings or any aspect of haematology, renal or hepatic functions or serum cortisol concentration. Serum testosterone was reduced gradually by about 76% (Saline control, 8.52 ± 0.21 ; CaCl_2 , 2.05 ± 0.14), along with libido (sexual interest in estrus female dog) in 6 months of calcium chloride treated dogs as compared to saline controls. Whereas, a significant ($p < 0.01$; One way ANOVA followed by Newman-Keuls test) elevations of serum LH and FSH concentrations were also noted in calcium chloride treated animals in comparison with saline controls. After 6 months of treatment, dogs underwent surgery and testes and epididymis were removed and histologically examined. Histology showed complete necrosis without presence of any germ/sperm cells, along with the appearance of fibrous/hyaline tissue in calcium chloride treated dogs whereas; normal testicular and epididymal histology were evident in saline control dogs. In conclusion, intra-testicular injection of calcium chloride associated with ethyl alcohol and lidocaine demonstrates potential for androgenesis-eliminating nonsurgical sterilization of sexually mature male dogs.

KEYWORDS

Dog
Sterilization
Calcium chloride
Ethyl alcohol
Lidocaine
Sperm
Testosterone