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Optimization of nonsurgical castration through a bilateral intratesticular injection of chemosterilizing agents in black bengal (*Capra hircus*) bucks

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The study was aimed to introduce nonsurgical castration by intratesticular injection of calcium chloride, sodium chloride and citric acid solutions in Black Bengal bucks. Twelve healthy bucks were divided randomly into four groups consisting of three bucks in each of Group A, B, C and D. Local infiltration with 2% lidocaine hydrochloride in spermatic cord was applied in each buck followed by bilateral intratesticular injection of 30% CaCl₂, 25% NaCl and 50% citric acid solutions @ 2 ml per testis in each buck of Group A, B and C respectively. The control bucks (Group D) received 2 ml sterile deionized water intratesticularly. To evaluate the efficacy of chemical agents on inactivation of testes, clinical parameters, changes in scrotal circumference, testicular fine needle aspiration (TFNA), histopathology and serum concentration of testosterone and LH were monitored. A significant ($P < 0.05$) decrease in the scrotal circumference was observed from day 0 to day 14 in all the treated bucks. Azoospermia was observed on day 14 post-injection in the treated bucks except one in the group C. Histopathology revealed massive destruction of seminiferous tubules and disorganization of the testicular parenchyma in the treated bucks. Serum testosterone concentration declined significantly ($P < 0.01$) from day 0 to day 14. Consequently, a gradual elevation in serum LH concentration was found significant ($P < 0.05$) from day 0 to day 14. These findings revealed that intratesticular injection of chemosterilizing agents could induce chemical based nonsurgical castration in Black Bengal bucks.

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