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Title of thesis : Chemical Castration Using Intra-testicular Injection of Hypertonic Mannitol in Guinea Pig: Evidence from Histological and Spermatological Screen .

Nowadays, animal sterilization is used as an effective method for control of population and disease transmission in most countries. But, the conventional surgical method leads to complications such as infection, risks of anesthesia, high cost and being time-consuming; therefore, an alternative low-cost method should be used. According to the previous researches, chemical sterilization is a fast and less complicated method of sterilization in addition to being inexpensive. Also, so far, very little research has been done in the field of chemical sterilization using intra-testicular injection in guinea pigs. For this reason, the current research was conducted with the aim of examining 20% mannitol solution effect on testicular tissue of male guinea pigs to make sterilization. For this purpose, 9guinea pigs were divided into 3 equal groups; two groups received 0.9 % normal saline and 20% mannitol (0.5 mL into each testicle) respectively, and the other group was considered as a control (injection-free group). After 35 days, the testicles and epididymides were harvested for histological and spermological examinations, respectively **.**

The 20% mannitoland 0.9 % normal saline caused significant reductions in the quality and maturity of seminiferous tubules as well as sperm plasma membrane integrity and viability compared to the control group being more obvious in mannitol-treated group. Taken together, it seems that determination of 20% mannitol efficacy in guinea pig sterilization required further researches clarifying precise administration strategy regarding different testicular angioarchitecture and intrinsic resistance against inflammatory reactions in this species.