

SESSION OVERVIEW

Moderator: Dr. Michelle Anne Kutzler

Panelists: Dr. Kuladip Jana, Dr. Joseph Tash, and Dr. Raphaël Vanderstichel

TARGETING THE TESTES FOR CHEMICAL CONTRACEPTION

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Chemical castration is a non-surgical approach to male contraception. The technique is inexpensive, not technically challenging and is suitable for large-scale sterilization programs particularly in remote locations lacking sophisticated clinical facilities or skilled surgeons and staff. Unlike surgical castration, chemical castration does not completely eliminate gonadal sources of testosterone.

Chemical agents can be injected into the testis, epididymis or vas deferens to cause infertility by means of causing azoospermia. These methods have been investigated for more than five decades. Historically, chemical agents used as contraceptives in dogs and/or cats for intratesticular injection include α -chlorohydrin, Bacillus Calmette Guerin (BCG), danazol, dexamethasone, Freund's complete adjuvant (FCA), methallibure, metopiron, and niridazol. With respect to intraepididymal injections, zinc arginine, formalin, and chlorhexidine gluconate solutions have been administered to dogs and chlorhexidine digluconate solutions to cats to induce sterility. Injections directly into the vas deferens with sclerosing chemical agents (10% silver nitrate, 3.6% formaldehyde in ethanol, 5% potassium permagnate, 100% ethanol, or 3.6% formaldehyde) also induce irreversible infertility in dogs. Within the past 10 years, research in this area has focused on the intratesticular injection of zinc gluconate (ZeuterinTM/EsteriSolTM) or calcium chloride solutions.

Another method of chemical castration that has been investigated for several decades is the administration of reproductive toxins. Reproductive toxins must be carefully selected to be safe in other tissues. In males, reproductive toxins that are administered parenterally target the seminiferous epithelium. Historically, these reproductive toxins have included α -chlorohydrin, benzoquinones (e.g. embelin), bisdiamine compounds (amebicidal drugs), ketoconazole, and prolactin. Current research is underway investigating H2-gamendazole, KU-AS-272 and other proprietary agents that offer great promise in inducing permanent sterilization in male dogs and cats by targeting the gonads.

With the continued support from the Alliance for Contraception in Cats & Dogs, Michelson Prize and Grants, and many other partnerships, the future of achieving nonsurgical sterilization in dogs and cats is very promising.