

CALCIUM CHLORIDE TESTICULAR INJECTION FOR NONSURGICAL STERILIZATION OF MALE DOGS AND CATS: REVIEW OF STUDIES, WITH REGULATORY STATUS AND IMPLICATIONS FOR FIELD USE

Elaine Lissner
Parsemus Foundation, San Francisco, California, USA

Calcium chloride dihydrate (CaCl₂) solution as a testicular injection is simple to formulate and has been known to be an effective nonsurgical male dog and cat sterilant since the 1970's (Koger LM 1977 & 1978)^{1 2}, yet only in recent years has research systematically addressed many of the most common questions: Does it cause pain? Can swelling be avoided? What is the most suitable solvent: saline, lidocaine, or alcohol? How does CaCl₂ compare to zinc gluconate injection's mean 41-52% testosterone reduction^{3 4}? With no regulator-approved male sterilization injection outside the Americas, the timing of zinc gluconate reintroduction to the U.S. and Latin American markets uncertain, and dog and cat population management at crisis stage for many groups around the world, these questions take on greater urgency.

This presentation reviews the current state of calcium chloride research, including controlled trials from India (Jana & Samanta 1997 in dogs and 2011 in cats), as well as forthcoming results from Italy showing that pure pharmaceutical-grade alcohol is the most effective solvent and results in the fewest adverse reactions (Leoci et al. 2013, in press)⁵. We present photo and video demonstration of use and discuss why calcium chloride has current or near-term potential; mode of action; how it differs from zinc gluconate injection; and a hypothesis as to why testicular injections do not produce the pain reactions one would expect.

No large organization is pursuing regulatory approval of calcium chloride, leaving varying opinions on the advisability of its use absent regulatory approval. American Veterinary Medical Association guidelines addressing alternative and novel approaches specifically affirm that "Because of the lack of data for some areas of veterinary medicine, it is necessary for veterinarians to extrapolate information when formulating treatment options." The AVMA task force "recognized this is a vital aspect of our profession, and the guidelines encourage veterinarians to critically evaluate the information for any treatment and therapy before applying it to a specific clinical situation."⁶ The forthcoming data from Italy answers many technical questions; however, state-by-state and nation-by-nation variations in veterinary board attitudes toward novel treatments leave veterinarians exposed to potential criticism of their professional judgement and hinder widespread use.

¹ Koger LM. Calcium Chloride, Practical Necrotizing Agent. 1977. Am Soc An Sci Ann Mtg, #451, p 180.

² Koger LM. Calcium chloride castration. Mod Vet Pract. 1978 Feb;59(2):119-21.

³ Freedom of Information Summary, NADA 141-247, Neutersol® INJECTABLE SOLUTION for Dogs (Zinc Gluconate Neutralized by Arginine) Intratesticular injection for chemical sterilization in 3 to 10 month old male dogs, Date of Approval: March 17, 2003.

⁴ Ark Sciences Frequently Asked Questions, <http://www.arksciences.com/faq.html>, accessed 7 June 2013.

⁵ Leoci R et al: Non-surgical sterilization with intratesticular injection of calcium chloride in dogs. Part II: Evaluation of lidocaine versus alcohol as diluents. In press.

⁶ Alternative and Complementary Therapies Task Force: An insight into the AVMA Guidelines for Complementary and Alternative Veterinary Medicine. J Am Vet Med Assoc. 2001 Jun 1;218(11):1729-30.