IN THIS ISSUE

- Seborrhoeic Dermatitis in Pigmy Goats
- Tiletamine-Zolazepam Anesthesia and Intradermal Histamine in Cats
- Diagnostic Methods for Canine Hypothyroidism
- Changes in Afferent Lymph in Ovine Orf
- Canine Hair Follicle Neoplasms
- Experimental Infection with Sarcoptes scabiei
- Staphylococcus intermedius in Dogs
- Alopecia with Adrenocortical Adenoma in a Ferret
- Epidermoid Cysts in the Skin of an Asian Elephant
- Perforating Dermatitis in a Siamese Cat
- Necrolytic Migratory Erythema in a Dog
Official Journal of the European Society of Veterinary Dermatology and the American College of Veterinary Dermatology

Editors: David Lloyd and Carol Foil

Editorial Consultants
Didier Carlotti (France)
John Cooper (Tanzania)
Luis Ferrer (Spain)
Thelma Lee Gross (U.S.A.)
Eric Guaguere (France)
Richard Halliwell (U.K.)
Ann Hargis (U.S.A.)
Peter Ihrke (U.S.A.)
Hans Koch (Germany)
Gail Kunkle (U.S.A.)
Ken Kwochka (U.S.A.)
David McEwan Jenkinson (U.K.)
Bill Noble (U.K.)
Danny Scott (U.S.A.)
Tony Stannard (U.S.A.)
Keith Thoday (U.K.)
Stephen White (U.S.A.)
Claudia von Tscharner (Switzerland)
Ton Willemse (Netherlands)
Julie Yager (Canada)

Published bimonthly in February, April, June, August, October and December by ESVD and ACVD. Copyright (1992) ESVD and ACVD.

Acknowledgements to abstract translators:
Dr. Victoria Holland (Spanish), Dr. Pascal Prelaud (French) and Dr. Elisabeth Venzl (Germany).

Annual Institutional Subscription Rates (1992): £130.00 (U.S.$199.50). Two-year institutional rate (1992/93): £247.00 (U.S.$399.10). Sterling prices are definitive. U.S. dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice. There is a specially reduced rate of £60.00/$96.00 for individuals. Subscription rates for Japan include despatch by air and prices are available on application.

Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., 395 Saw Mill River Road, Elmsford, NY 10523, U.S.A., and for the remainder of the world to: Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, U.K. Tel: (0865) 794141; Fax: (0865) 60285.

Members' subscriptions: Members of the European Society of Veterinary Dermatology and of the American College of Veterinary Dermatology are entitled to receive the Journal at a subsidised rate and should apply to their respective secretaries.


---

Veterinary Dermatology


Contents

Editorial
An embarassment of riches? iii

News
A Dermatological Bulletin Board iv
The Second World Congress of Veterinary Dermatology v
Support for Canine Hereditary Skin Disease Research vi

Papers
Seborrhoeic dermatitis in pigmy goats.

The effect of tiletamine-zolazepam anesthesia on the response to intradermally injected histamine in cats.

Studies of various diagnostic methods for canine hypothyroidism.
M. Paradis, S. Lepine, S. Lemay and M. Fontaine.

Qualitative and quantitative changes in ovine afferent lymph draining the site of epidermal orf virus infection.

D. W. Scott and W. I. Anderson.

Experimental infection of dogs with Sarcoptes scabiei derived from naturally infected wild red foxes (Vulpes vulpes): clinical observations.
S. Bornstein.

Carriage of Staphylococcus intermedins on the ventral abdomen of clinically normal dogs and those with pyodermia.

Case Reports

Epidermoid cysts in the skin of an Asian elephant (Elephas maximus).
W. I. Anderson and D. W. Scott.


Necrotic migratory erythema in a dog with a glucagon-secreting endocrine tumor.
W. H. Miller, Jr., W. I. Anderson and J. P. McCann.

Book Reviews
Advances in Dermatology, Volume 6.
Feline practice.
Dermatology for the small animal practitioner.

Calendar of Dermatology
Instructions for Authors
Author Index and Contents for Volumes 1 and 2
ISSN 0959-4493

Cover illustration: Normal (left) and abnormal (right) collagen fibres of the superficial dermis in a Siamese cat with a perforating dermatitis (Masson's trichrome stain). From Scott and Miller, page 173.
The Effect of Tiletamine-Zolazepam Anesthesia on the Response to Intradermally Injected Histamine in Cats

RALF S. MUELLER1, PETER J. IHRKE2, PHILIP H. KASS3 & SONYA V. BETTENAY4

Veterinary Medical Teaching Hospital1,
Department of Medicine2,
Department of Epidemiology and Preventive Medicine3,
University of California, Davis,
CA 95616, USA,
and
Animal Skin and Allergy Clinic,
Armadale, VIC 3143,
Australia4

Abstract — The purpose of this study was to evaluate the effect of intravenously administered tiletamine-zolazepam on the response of cats to intradermal injections of varying concentrations of histamine, thereby giving an indication of the feasibility of using tiletamine-zolazepam for the restraint of cats during intradermal skin testing.

Ten cats were injected intradermally with increasing concentrations of histamine and a negative control before and after anesthesia with tiletamine-zolazepam (5 mg.kg−1 intravenously). The wheals produced by the eight different concentrations of histamine (1:100,000 to 1:9,600,000) and the negative control before and after anesthesia were compared in each cat. There was no significant difference in the response to the intradermal histamine injections before and after anesthesia. It was concluded that 4 mg.kg−1 of tiletamine-zolazepam administered intravenously may be a good anesthetic choice for intradermal skin testing in cats.

Key Words: Intradermal skin testing; Cats; Tiletamine-zolazepam.

INTRODUCTION

Atopy (atopic dermatitis, allergic inhalant dermatitis) is a well recognized allergic skin disease in the dog (1, 2, 3). Affected individuals have an inherited predisposition to form IgE antibodies against environmental allergens and subsequently develop pruritic skin disease following re-exposure to these allergens. Canine atopy is classified as a type I hypersensitivity reaction where binding of allergens to mast cell fixed IgE or IgGd leads to degranulation and release of pharmacologically active compounds (1, 3, 4). A similar disease is recognized in humans (5, 6, 7).

The diagnosis of atopy in cats is based on intradermal skin testing and response to hyposensitization (9, 10, 11, 12). However, feline IgE has not been conclusively identified, even though a reaginic antibody was detected in cats with positive skin test reactions (8), which supports the premise that an IgE like antibody exists in cats.

Intradermal skin testing is the most commonly utilized procedure for the diagnosis of canine atopy (1). Physical restraint can be problematic and intradermal skin test results can be influenced by endogenous corticosteroid and/or epinephrine release in dogs (1, 2). Thus, immobilization with xylazine hydrochloride, tiletamine-zolazepam, short acting barbiturates or inhalation anesthesia has been recommended (2, 3, 13, 14, 15, 16).

Intradermal skin testing is not easily accomplished in the cat utilizing physical restraint alone. Movement can be expected, which may affect the quality of injections and influence the results of the skin test. Additionally, release of glucocorticoids and epinephrine would be expected to reduce skin test reactivity as reported in the dog (1, 2). Ketamine has been recommended as a satisfactory anesthetic for skin testing in cats (1, 2). Ketamine and diazepam in combination also have been used (17).

A new dissociative anesthetic product containing a 1:1 mixture by weight of tiletamine as dissociative and zolazepam as benzodiazepine, is approved as an injectable anesthetic agent for dogs and cats (Telazol, A. H. Robbins, Richmond, VA). Intravenous use produces effective chemical restraint for short diagnostic and minor surgical procedures (J. Ilkiw, Veterinary Medical Teaching Hospital, University of California, Personal communication, 1991).

Tiletamine-zolazepam anesthesia recently was reported by Codner to be a good choice for intradermal
skin testing in the dog (13, 14). Diminution of skin test reactivity would be unlikely as tiletamine does not have antihistaminic action (18) and interaction of zolazepam and histamine has not been reported (14).

The purpose of this study was to evaluate the effect of intravenously administered tiletamine-zolazepam on the response of cats to intradermal injections of varying concentrations of histamine, thereby giving an indication of the feasibility of using tiletamine-zolazepam for the restraint of cats during intradermal skin testing.

MATERIALS AND METHODS

Eight female and three male domestic short haired cats from a colony of cats with a genetic predisposition to the development of feline eosinophilic granuloma at the University of California/Davis (19) were used in the study. On physical examination, all cats had normal haircoat and underlying skin. An indolent ulcer was present on the upper lip in one cat and ulcerations of the hard palate typical of eosinophilic granuloma were seen in two additional cats. A biopsy of these lesions confirmed the diagnosis (19). Ten cats had not received any topical or parenteral medication for at least two months prior to the study. The eleventh cat had completed a two-week-course of topical medication containing nystatin, neomycin sulfate, thioptopone and triamcinolone acetonide (Panolog, Solvay Veterinary, Princeton, NJ) which was applied twice a day to an eosinophilic granuloma lesion in the preauricular region 14 days previously.

A protocol previously described was utilized (14). Skin testing was performed in all eleven cats on the left lateral thorax using only physical restraint. Skin testing was then repeated six hours later on the right lateral thorax utilizing tiletamine-zolazepam anesthesia.

An area of approximately 10 x 5 cm on the left lateral thorax of each cat was clipped with an electric clipper (Oster Clippers, Milwaukee, Wis.) using a No. 40 blade. Nine injection sites were marked with a permanent marker pen (Sharpie, Sanford Corp., Bellwood, IL.). One diluent control (Sterile diluent for 40 blade. Nine injection sites were marked with a permanent marker pen (Sharpie, Sanford Corp., Bellwood, IL.) and eight diminishing dilutions of histamine (Histamine phosphate 2.75 mg/ml; Lily, Indianapolis, IN.) (1:100,000; 1:200,000; 1:400,000; 1:800,000; 1:1,600,000; 1:2,400,000; 1:4,800,000 and 1:9,600,000) were injected intradermally two cm apart in two horizontal rows. Only one injection of each histamine dilution was made due to the size constraints of the thorax of cats and the increasing resistance of unanesthetized cats to the injection procedure. A volume of 0.05 ml was injected at each site using one milliliter tuberculin syringes and 26 gauge needles with intradermal bevels (Precision glide 26G 3/8 Becton Dickinson, Rutherford, NJ.). Fifteen minutes after injection, the wheals were graded from zero to four, based on size, elevation, erythema and induration (subjective evaluation). The diluent was used as a negative control and graded as zero, the most concentrated histamine dilution (1:100,000) served as a positive control and was classified as a four. The diameter of the wheals was measured in mm (objective evaluation).

Six hours later, each cat was administered 4 mg/kg tiletamine-zolazepam intravenously. The right lateral thorax was clipped in the corresponding area and the same procedure carried out as described above. Wheals were evaluated in a similar manner.

Subjectively graded responses to histamine injection at various dilutions before and after anesthesia were compared using the nonparametric sign test for matched pairs. Objectively measured responses to histamine injection at various dilutions were compared using the paired T-test and the nonparametric Wilcooxin paired test for signed ranks. Hotelling’s T square test was used to test the null hypothesis that all differences in mean wheal diameter were simultaneously zero. Linear and polynomial regression was used to see if differences in wheal diameter systematically varied with log histamine dilution. All analyses were performed using BMDP statistical software (20). Statistical adjustment for multiple comparisons to maintain a nominal level of significance of 0.05 was performed using the sequentially rejective multiple test procedure of Holm (20).

RESULTS

Tiletamine-zolazepam 4 mg.kg⁻¹ intravenously immobilized all cats for 20 to 40 minutes. Except for muscle tremors of the limbs, recovery was uneventful in all cats.

The median values of the subjective grading increased from zero to four without anesthesia and from zero to four with anesthesia as histamine concentration increased. Similarly, the mean diameter of the wheals increased in size from 4 to 11 mm and from 4.4 to 11.3 mm respectively (Table 1).

There was no significant difference between the mean wheal diameter values before and after anesthesia at each histamine solution. However, 12 of the 90 injection pairs showed a difference of more than one grade in the subjective evaluation and 21 injection sites varied more than three mm in wheal diameter.

The eleventh cat which received a corticosteroid-containing ointment two weeks prior to the study exhibited only a minimal response to all the intradermal injections including the most concentrated histamine dilution. Since it was probable that the previous therapy had suppressed skin test reactivity, this cat was not included in the statistical evaluation of the larger study.

All pairwise tests indicated that there was no significant difference (p > 0.05) in mean response to the intradermal injections before and after anesthesia.
REFERENCES

6. Ishizaka, T. Mechanism of IgE mediated hypersensitivity. In: Middleton, E., Reed, C. E., Ellis, E. F.,
Tiletamine-zolazepam for intradermal testing in cats

Résumé — Le but de cette étude était d'évaluer l'influence d'une injection intraveineuse de tiletamine-zolazepam sur la réponse de chats à des injections intradermiques de différentes concentrations d'histamine, afin de savoir si une anesthésie à l'aide de tiletamine-zolazepam était utilisable pour faire des tests cutanés chez le chat. Des concentrations croissantes d'histamine et un témoin négatif ont été injectés par voie intradermique à dix chats avant et après injection IV de tiletamine-zolazepam (5 mg/kg). Le diamètre des papules aux neuf concentrations différentes d'histamine (1:100 000, 1:2 800 000, 1:4 800 000 et 1:9 600 000) et au témoin négatif ont été comparés pour chaque chat avant et après anesthésie. Il n'existait de différence significative avant et après anesthésie. Il a été conclu qu'une anesthésie à l'aide de 5 mg IV de tiletamine-zolazepam était utilisable pour effectuer des intradermoréactions chez le chat. [Mueller, R. S., Ihrke, P. J., Kass, P. H. Bettenay, S. V. The effect of tiletamine-zolazepam anesthesia on the response to intradermally injected histamine in cats (Etude de l'influence d'une anesthésie à l'aide de tiletamine-zolazepam sur la réponse à des injections intradermiques d'histamine chez le chat). Veterinary Dermatology, 1991; 2: 119–123].


Resumen — El presente reportaje tiene como objetivo el estudio de la administración intravenosa de tiletamina-zolazepam en la respuesta de un grupo de gatos sometidos a la inyección intradérmica de diferentes concentraciones de histamina, dando así una indicación de la utilidad de tiletamina-zolazepam para la inmovilización de gatos durante el test de la inyección intradérmica. Se inyectaron intradermicamente diez gatos con concentraciones crecientes de histamina y un control negativo, antes y después de la anestesia producida con tiletamina-zolazepam (5 mg/kg de forma intravenosa). Luego se compararon las ronchas producidas por las diferentes concentraciones de histamina (1:100,000–1:9,600,000) y el control negativo, antes y después de la anestesia. No hubo diferencia significativa en la respuesta a la inyección intradérmica de histamina antes o después de la anestesia. Así, se concluyó que la administración de 5 mg de tiletamina-zolazepam de forma intravenosa podría ser un anestésico satisfactorio en el test intradérmico llevado a cabo en gatos. [Mueller, R. S., Ihrke, P. J., Kass, P. H., Bettenay, S. V. The effect of tiletamine-zolazepam anesthesia on the response to intradermally injected histamine in cats (El efecto de la anestesia producida por tiletamina-zolazepam en la respuesta de gatos inyectados intradermicamente con histamina). Veterinary Dermatology, 1991; 2: 119–123].