Anti-pruritic effect of topical capsaicin against histamine-induced pruritus on canine skin

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Abstract

Several human studies have reported that capsaicin has anti-pruritic effects. Moreover, several concentrations of topical capsaicin have been used to alleviate itch. The aim of this study was to investigate the anti-pruritic effect of capsaicin against histamine-induced pruritus compared with that of topical steroid or vehicle in 15 healthy beagles. Fifteen dogs were divided into three groups (n = 5 each), and treated topically with one of the following on the left side of the neck: capsaicin, positive control (steroid), or negative control (vehicle). Each treatment was performed twice daily for 8 days. All dogs were injected with histamine intradermally before treatment and on the 2nd, 4th, 6th, and 8th days of the treatment to evoke itch. Pruritus, wheal, and erythema intensity were assessed at each evaluation; cutaneous temperature was also recorded. On the final day, skin biopsy was conducted for histopathological evaluation for all dogs. The severity of pruritus was lesser in the capsaicin-treated group compared with the negative control group on day 8 (p<0.05). In the capsaicin and steroid groups, wheal size, erythema index, and cutaneous temperature also decreased compared with pretreatment. Histopathological evaluation showed that the capsaicin-treated group had a higher number of inflammatory cells in the dermis compared to the vehicle control group; however, the steroid-treated group showed less severe inflammatory reactions than the vehicle control group. These results suggest that capsaicin cannot reduce inflammation but may play a helpful role in reducing pruritus in dogs.

Key words: anti-pruritic effects, capsaicin, dog

Introduction

Pruritus is the most common symptom associated with many skin diseases, and can lead to an increased predisposition to skin infection in dogs (Greaves and Khalifa 2004). In addition, chronic and continuous itching may result in low quality of life with severe discomfort (Hundley et al. 2006, Favrot et al. 2010). To control pruritus, many clinicians use glucocorticoids; however, these are sometimes ineffective and cause unwanted side effects (Wahlgren 1991, Olivry et al. 2010).

Capsaicin is a phytochemical ingredient obtained from the plant genus Capsicum. The diverse effects of capsaicin have been reported in various clinical settings (Foreman 1987, Tupker and Coenraads 1992, Ellis et al. 1993, Tarng et al. 1996). The classical view is that capsaicin...