



Efficacy of an oral zinc supplement along with an essential oil spot-on in Pomeranian dogs with hair cycle arrest (alopecia X): an open label pilot study

Yeong-Hun Kang *, Stefan Hobi †, Cheol-Yong Hwang *

*Laboratory of Veterinary Dermatology and the Research Institute for Veterinary Science, College of Veterinary Medicine, Seoul National University, Seoul, South Korea

†Department of Veterinary Clinical Sciences, Jockey Club College of Veterinary Medicine and Life Sciences, City University, Kowloon, Hong Kong, China

Introduction

Hair cycle arrest (alopecia X) is a non-inflammatory symmetrical hair loss disorder, affecting Nordic breeds such as Pomeranian. Although there is evidence that alopecia X is associated with hormonal, environmental factors, and mitochondrial DNA mutations, the exact pathogenesis is not known yet. Current treatment is limited and includes the use of various hormonal products, microneedling and laser therapy. However, there is no golden standard for managing this disorder because of lack of knowledge, treatment limitations, ethical considerations, or side effects¹.

In human medicine, numerous supplements are used to treat hair loss. Micronutrients play a key role in the normal function of the hair follicle. Furthermore, there is evidence that different types of alopecia are characterized by lower levels of trace elements compared to their controls²⁻³. The association between alopecia areata in humans and zinc intake is hypothesized to be due to its role in copper and/or zinc superoxide dismutase, with decreased levels resulting in tissue oxidative damage⁴.

Keravita® is a palatable food supplement, containing numerous vitamins and minerals including zinc. Essential 6® is a dermo-care spot-on, mainly composed of hemp seed oil rich in essential fatty acids (Omega 3 and 6) and essential oils.

Materials & Methods

A total of nine client-owned Pomeranian dogs were recruited after given owner consent.

Inclusion criteria:

- Pomeranian dogs with chronic hair loss and a diagnosis of alopecia X
- Dogs less than five years of age
- Exclusion of bacterial folliculitis, demodicosis and hormonal diseases

Exclusion criteria:

- Oral steroid therapy, at time of presentation or within the past two months
- Diagnosis of a hormonal disease such as hypothyreosis, hypercortisolism or sex hormone disease
- Melatonin, trilostane, deslorelin, growth hormone, mitotane (o, p'-DDD), medroxyprogesterone acetate or microneedling treatment for alopecia within the past three months
- Neutering performed within the past three months

Methods:

Keravita® was given orally once a day, and Essential 6® spot-on was applied once a week onto the skin at the shoulder area over 12 months. The diet was not changed during this period.

A Hair Growth Assessment Scale (HGAS) [0-4] was used to evaluate hair regrowth on the dorsum, ventrum, flanks, limbs, thighs, and ventral neck:

[0 = No improvement, 1 = 1–25% improvement, 2 = 26–50% improvement, 3 = 51–75% improvement, 4 = 76–100% improvement.]

An owner questionnaire was conducted to assess satisfaction of the product efficacy, convenience of drug application, hair quality and hair density.

[0 = Strongly disagree, 1 = Disagree, 2 = Agree, 3 = Strongly Agree.]

For five dogs, the skin barrier function was assessed via measurement of the transepidermal water loss (TEWL) and skin hydration.

Statistical analysis was performed using One-way ANOVA test, and p-values <0.05 were considered statistically significant.

References

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Results

The response to treatment varied among individuals. HGAS scores improved along the trial (3M median: 2 [range: 0-14] and 6M median: 5 [range: 0-18]), and owners reported satisfaction with the products' efficacy (1M median: 2 [1-2], 6M median: 2 [1-3]) and ease of use (1M: 2 [1-2], 6M: 3 [2-3]). TEWL significantly decreased over time (mean [SD]: 0M 14.0 [8.2] g/m²/h and 6M 7.56 [8.3] g/m²/h; p=0.003), while the skin hydration increased accordingly (mean [SD]: 0M 10.9 [5.3] a.u and 6M 15.6 [9.7] a.u; p=0.02). The medications used in this study were well tolerated and none of the dogs showed any adverse reactions (figures 1 and 2).



Figure 1. Pictures of case 6. Hair regrowth by more than 50% of the body after one year of treatment.

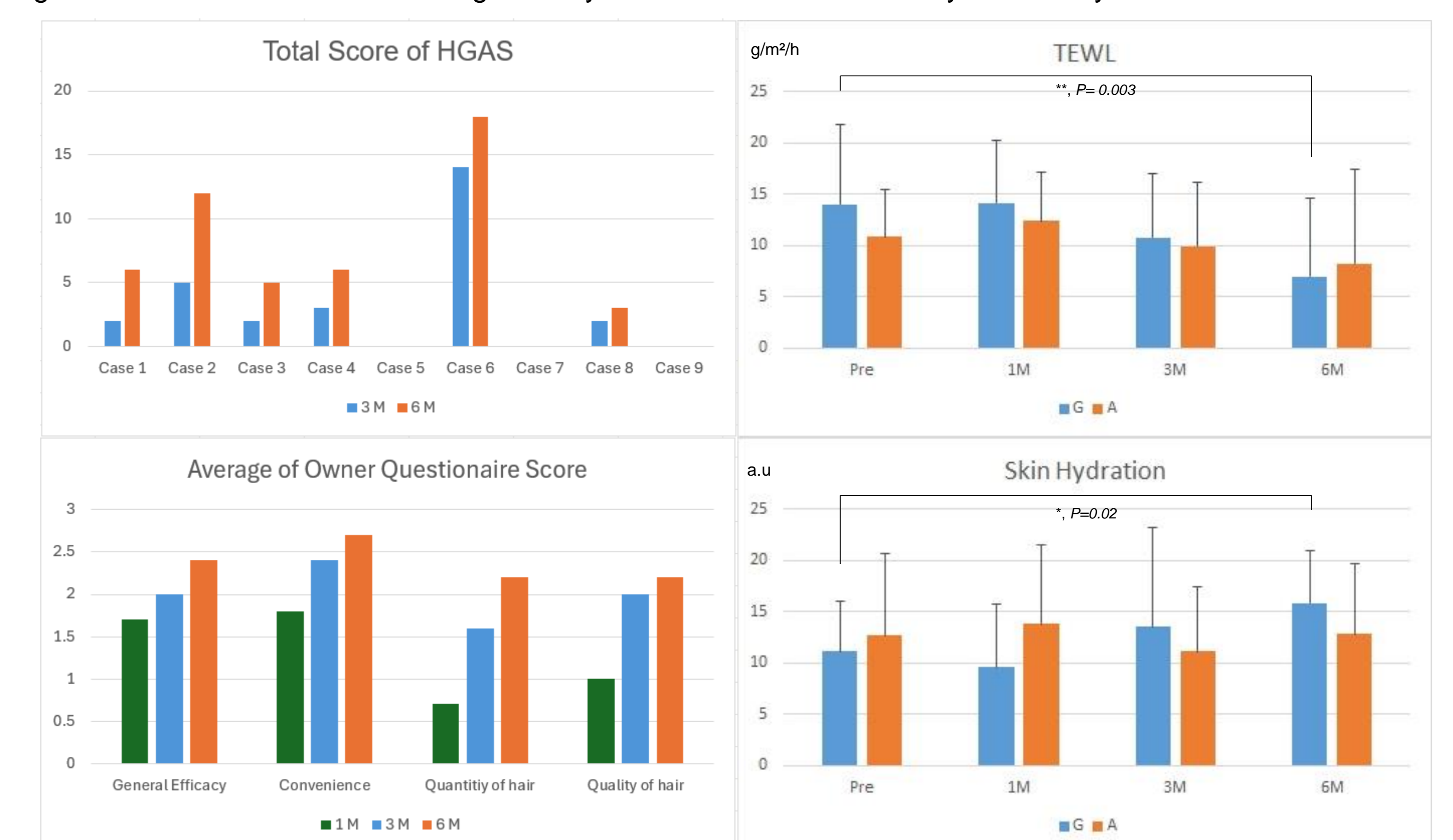


Figure 2. Bar graphs. G= Glabrous region and A= Alopecic region.

Conclusion

The synergistic use of an oral supplement enriched in zinc together with an essential oil based spot on, appears to have beneficial effects in enhancing hair regrowth and improving skin hydration in a subset of Pomeranian dogs with alopecia X.

Conflicts of Interest

The products used in the present study were provided by Dermoscent®, Castres, France.