Therapeutic

The use of a spot-on composed of essential oils in the treatment of kerato-seborrheic disorders of dogs: controlled prospective study

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Summary
Kerato-seborrheic skin diseases (scaling and seborrheic dermatoses) are frequent in canine dermatology. The treatment is based upon first of all a proper identification and the management of the dermatoses which is responsible of the development of scaling and/or greasiness of the skin (seborrhea). A complementary topical treatment is however often indispensable at initial stage in order to rapidly improve the skin condition. This study compared the use of a shampoo alone to the association of a shampoo followed by the application of a spot-on formulation composed of essential oils which is commercialized in the indication of improving the cutaneous aspect of pets. After a 6 weeks period of treatment, the improvement was greater in the group receiving the association as compared to the group receiving only the shampoo. These preliminary results suggest that the use of such a spot-on with anti-seborrheic properties can be of interest in the treatment of kerato-seborrhea cases of dogs.

Introduction
The kerato-seborrheic disorders (EKS) include a variety of dermatoses with identical clinical presentation which is characterized by the development of scaling and/or greasiness (2,6,8). These dermatoses are due to the multiplication and/or an abnormal elimination of epidermal keratinocytes and/or of sebocytes (2,6,8). The treatment of kerato-seborrheic disorders (EKS) for dogs starts from a proper identification and the suppression of the responsible
cause of the disorders of the keratinisation, as well as topical treatments targeting to improve rapidly cutaneous condition and to eliminate the scaling and the exceeding sebum.

The treatments for dogs are above all the shampoos, due to the fact that the application of creams or gels on hair is very difficult for large and generalized lesions (6, 9). Since several months, a spot-on composed of essential oils is available on veterinarian market for the indication of improving skin condition for dogs and for cats. It is thus interesting for us to evaluate the interest of this product in association with a shampoo for the treatment against EKS of dogs.

**Materials and methods**

20 dogs with bad odor and “dandruff” have been sampled in this study. Animals of all breeds, ages and sexes were included. For each single case, the epidermiological and clinical data have been recorded. The cutaneous lesions have been scored by using criterions of evaluation such as scaling and the seborrhea from 0 (absence) to 4 (important presence). The skin condition has been also scored by using a note of 0 (shiny) to 4 (very abnormal skin and hair, either too dry or too greasy).

Animals with ectoparasitose or a skin infection have been excluded from the study. During inclusion visit, complementary examinations as below stated have been carried out systematically to exclude these hypothesis: skin scraping, combing, cytological examinations through test with adhesive cellophane.

Animals treated by in-takes for anti-inflammatory, anti-histaminic, antibiotics, or anti-fungal since less than 2 weeks as well as those being treated by injectable cortico-therapies have been excluded from the study.

These dogs being separated into 2 groups through random drawing (by following a list of pre-established randomization) have received different treatments: the first group was treated with a biweekly (twice a week) application of a non medical shampoo (Dermoscent® EFA treatment shampoo for sensitive skins with allergic tendency, laboratory LDCA) during 2 week; the 2nd group was treated with a biweekly application of the same shampoo followed by a next-day application of one pipette of spot-on (Dermoscent® Essential 6, Laboratory LDCA). The dosage of the pipette was adapted to animal weight (1-10kg, 10-20kg, 20-40kg). The use of the shampoo was undertaken the usual way. To sum up, animals were wet, then the 1st application followed by a rinse then a 2nd application. A 5 minutes pause was respected before the rinse-off and a hair-dry. The application of the spot-on was also undertaken the usual way, at the neck between the shoulders, directly on the skin. Several application spots along the line of the back can be applied for dogs over 20kg.

No other treatment was authorized, except the application of a insecticide spot-on, systematically recommended during the inclusion visit (Advantix®, Fronline® or Stronghold®).

These animals were examined again 2 weeks after the treatment and scorings were executed on lesions and skin conditions exactly like during the first inclusion visit.

The appreciation of the pet owner and the investigator was also evaluated objectively on the basis of the criteria of efficacy, scored from 0 (no effect at all) to 4 (very clear improvement) as well as on the basis of the criteria of satisfaction from 0 (not satisfied) to 4 (very satisfied).
Results

20 dogs were included in the study. They were animals from 1 to 10 year-old (average 6.4 years of age), 14 males and 6 females, from variable breeds (with a preponderance of Labrador and Golden Retriever – 5 cases of each breed, and 4 cases of German Shepper).

The symptoms have evaluated from 1 month to 4 years (average of 1.2 years). The pruritus was in general moderate (14 cases), absence (4 cases) or important (2 cases). The skin lesions for all cases consisted of kerato-seborrheic cases which were qualified from “dry” in 11 cases to “greasy” in 9 cases. The scalings were pityriasiform for 12 cases and psoriasiform in 8 cases.

An important seborrhea was associated in 11 cases. Pet owners considered their dogs with a “dirty” skin condition in 14 cases and “bad” hair/skin quality in 8 cases. Associated lesions were noted in 15 cases: moderate erythema (8 cases), with hypotrichosis areas and/or alopecia (4 cases), discrete papules (1 case), lichenification and hyperpigmentation (4 cases).

All animals were treated with the shampoo without any undesirable effect reported by pet owners. Animals receiving the spot-on did not have any undesirable effect either. The visit for control was undertaken for 9 cases in each of the 2 groups (2 dogs were off sight during the study, one of each group).

An improvement of the lesions and of the skin/hair quality have been noted in all cases of both groups (Figures 1 & 2, photos 1 to 4). However, during the visit of control, a more remarkable improvement was observed for the group treated by association of shampoo and the spot-on compared to the group treated only by the shampoo (Figures 1 & 2). These differences were clearly remarked on cosmetic parameters such as hair shine, odor and healthy skin condition (Figure 2).
Among 10 cases of the 18, a persistence of some lesions was observed, noticeably with the seborrhea. These dogs had important lesions during the inclusion visit.

The appreciation of pet-owners and veterinarian varies from mediocre (1 case), average (3 cases), good (10 cases) to very good (4 cases) (Figure 3).
Discussion

Kerato-seborrheic disorders are a frequent cause in veterinarian dermatological consultation. Pet owner consults veterinarians most often times due to the fact that he/she is bothered by the scaling (see frame 1) or by unpleasant odor from the animal. Various causes can be responsible for the development of a kerato-seborrhic disorder on dogs (see frame 2), and the etiological diagnostic is therefore necessary to prescribe an adapted treatment. It is also important to remember that the use of a topical treatment remains a key arm for veterinarian dermatologists to help controlling the kerato-seborrheic disorders (6, 9). Several kerato-modulating active ingredients (kerato-lytic, kerato-regulating or anti-seborrheic) are available in veterinarian medicine, especially incorporated in therapeutic shampoos (6,8,9). The topical treatment eliminates dirt and the scaling which enables to restore an optimal epidermal function as well as to rehydrate the skin (4, 5, 6, 7). It is considered by most authors as an indispensable treatment to a long-term management of the kerato-seborrheic disorders.

In our study, the use of a shampoo for frequent cleansing has thus enabled the significant diminution of scaling and seborrheic lesions, thanks to a cleansing effectiveness and an acute hydration on the lesions (7). It is possible that the use of a kerato-regulating shampoo would increase significantly the good results obtained on these dogs.

The interest of the spot-on used in association has been noted on different parameters being studied, but was particularly remarked on cosmetological evaluations. This product has already demonstrated its interest in an open study on this precise indication, in particular by its effectiveness on rehydration of the stratum corneum (1). This effectiveness is obtained without any major occlusive effect, and is obtained through the incorporation of essential unsaturated fatty acids in the ceramides of the stratum corneum (1,3). In all seborrhea and particularly the dry seborrhea, it is necessary to apply a hydrating agent after the shampoo. As a matter of fact, it has been proven that the cutaneous hydration rate is lower for dogs with scaling than those with healthy skin.

The spot-on used during this study can thus help in the reconstitution of superficial cutaneous film (1,3). This product represents a significant interest compared to classical hydrating products (sprays, pump-sprays, lotions) thanks to its specific spot-on formulation which simplifies the application and thus increases tremendously the observance.

It is important to take note that the application of the spot-on has been undertaken at a strong rhythm of twice a week, which is double the initial recommendation from the laboratory. We have empirically chosen such frequency due to the fact that the shampoo was used as such which must have eliminated the active ingredients of the spot-on.

Statistics were not undertaken due to the small number of animals integrated in the study. The trends observed might not necessarily be significant. However, it is nevertheless clear that there is a strong clinical impression of the more important improvement in the group treated by the application of shampoo plus the spot-on versus the shampoo used alone, not only by the pet owners but as well as the veterinarian investigator.
Photo 1: close up of a case during inclusion visit- diffused erythema, lichenification and serious scaling.

Photo 2: Same animal as shown on photo 1 after 15 days’ treatment with the shampoo and the spot-on. Important diminution of the lesions.

Photo 3: Ichthyosis in a Golden Retriever during the inclusion visit: primary kerato-seborrheic disorder characterized by numerous black scales.

Photo 4: Same animal as on photo 3 after 15 days’ treatment with the shampoo and the spot-on - the disappearance of the scales is almost complete (although some lesions are still macroscopically visible, yet the improvement is clear and net compared to photo 3)
Conclusion

The use of a topical treatment like shampoo is indispensable for kerato-seborrheic disorders of dogs. The cutaneous rehydration must be assured after the shampoo. The use of a spot-on composed of essential oils and essential unsaturated fatty acids seems interesting in such indication. Further comparative studies between spot-on and pump-sprays or lotions would be worthwhile in order to better appreciate the efficacy of each of these formulations in daily practice.

References

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