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Koena, a Novel Compound That Dampens Inflammation in the Skin

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Abstract

Inflammatory skin diseases are characterized by the activation of the innate and adaptive immune system via the production of pro-inflammatory cytokines. The main proinflammatory cytokines responsible for this development include TNF-alpha, Interleukin 1, 6 and 17, also the transcription factor NF-kappa B. Small molecule anti-inflammatory compounds such as those detailed in the paper, show much promise in dealing with these skin disorders. Four nutraceutical molecules that are well characterized by their capacity to interact with many of the pro-inflammatory cytokines, importantly IL-17, are found in an Australian product, Koena. Koena has been shown to not only decrease these cytokines but also help increase the production of Interleukin 10 and important anti-inflammatory cytokines. This paper reports clinical benefits of Koena in a variety of circumstances; eczema and psoriasis; insect bites and sting; solar damaged skin and keratosis. An analysis of patient/purchaser reviews via the website Koena.com.au to ascertain what condition they purchased the product for, if any, and the satisfaction rating after use. More than 35% of reviewers reported purchasing Koena to help with inflamed skin. Those reporting being satisfied with the result was 95% for this use. This paper reports on the benefit of small molecule anti-inflammatories in modulating and not blocking an immune response. It also illustrates the benefits of multitherapy when dealing with complex inflammatory responses as opposed to monotherapy.

Keywords

Cytokines, Inflammatory Skin Disorders, Transcription Factors, Koena

1. Cytokines and Inflammatory Skin Disorders

Inflammatory skin diseases (ISD) cover a broad group of conditions where in-

flammation is a major contributing factor to its pathogenesis. This group of presentations include but are not limited to, psoriasis, atopic dermatitis, rosacea, and acne. The ISDs pathogenesis involves a variety of immune cells and is mediated by cytokines. For example, psoriasis is an inflammatory T cell-mediated disease involving among other cytokines Tumor Necrosis factor and IL17 [1]. Cytokines that cause an increased immune response are termed Pro Inflammatory Cytokines. Elevated levels of pro-inflammatory cytokines, including TNF-alpha, are found in psoriatic lesions. TNF-alpha has many effects in producing an inflammatory response such as stimulating production of the so called pro-inflammatory cytokines and the release of adhesion molecules. Song A, *et al.*, [2] in the paper Immunopathology and Immunotherapy of Inflammatory Skin Diseases recognize many proinflammatory cytokines responsible for skin disorders but increasingly recognize the role of IL-17.

Cytokines were first recognized in the mid 1960's as triggers released by T cells to affect the stimulations of B cells [3]. Over the following years many new cytokines were discovered and essentially fitted into one of two camps, the pro-inflammatory, or initiators of inflammation, and the anti-inflammatory cytokines that turn off the inflammation. Cytokines typically will cascade down a biological pathway triggering more and more cytokines along the way. The cascades of cytokines in these two groups act as regulatory mechanisms that turn on and off an inflammatory response to injury or infection, stress, toxins, and trauma. However, for a variety of reasons in certain circumstances the pro-inflammatory cytokines continue unabated causing some of the clinical manifestations of inflammatory skin disorders. This pro-inflammatory response originates with the ubiquitous cytokine tumor necrosis factor and its partner interleukin one, which trigger other cytokines especially interleukin six and seventeen to bring about an inflammatory response at specific tissues.

Whilst the role of these cytokines has been conclusively shown to have a considerable role in the pathogenesis of skin disorders, there has been an increasing recognition of the importance of certain transcription factors at the cell level that trigger the production of the cytokines in the first place [4]. Transcription factor control is seen as an important potential therapeutic tool. One of the most important nuclear transcription factors is Nuclear Factor kappa B (NF-kappa B). Obviously modifying the production of cytokines at the source, by dampening down the production from NF-kappa B, would be advantageous in the management of skin disorders [5]. Like all situations where a therapeutic agent is used as an immune modulator it is paramount not to turn off the immune system but dampen it down, as this could lead to further equally important conditions associated with immune suppression. The current use of monoclonal antibodies against TNF and other cytokines has been shown to be not only expensive but has been associated with immune compromisation [6]. There is a definite role for an inexpensive agent that just dampens down the action of PIC enough to have a clinical benefit, but not too much to cause a compromised immune system.

The components in Koena have been shown individually to influence the reduction in the level of cytokines through a variety of routes (**Table 1**). Certain of the components have also been shown to modify the production of cytokines by the inhibition of certain transcription factors including NF-kappa B [7]. The combination of the components leads to the synergistic action of Koena with direct effect on dampening down the production of cytokines. This makes Koena a powerful tool in the treatment of inflammatory mediated conditions. Components in Koena also have been shown to exhibit an impact on anti-inflammatory cytokine such as IL10 [8] [9] [10].

2. An Assessment of the Use of KOENA in Management of Dermatological Conditions

Koena has been commercially available in Australia for several years. During that time the website has been a repository of information around the use of the product purchased and their satisfaction with the purchase. The portal for reviews is open to all who purchase and there is no inducement for positive reviews. Over the years of operation certain trends have become apparent. Interrogating the data through EXCEL files we were able to ascertain 10 most common reasons for purchasing Koena (**Figure 1**) and we were also able to extrapolate the satisfaction rating for each group (**Figure 2**).

People have reported a wide range of uses for Koena, such as sunburn and solar damaged skin, nappy rash, rosacea and eczema and psoriasis. **Figure 1** and **Figure 2** illustrate the findings.

3. Detailed Reports from Purchasers

For some purchasers, apart from doing a review on the website, they wanted to give a more detailed account of their results with Koena. This often-included photographs to illustrate the point. Below are several individual reports, which are anonymous. The wording has not been changed and it is how the person wrote their report.

Table 1. Illustrates the breadth of action of the components in Koena. A review of the literature illustrated the number of papers in the last 10 years that reported the individual components as either reducing or increasing the impact of a particular cytokine.

Molecule	N-Acetyl Glucosamine	L Glycine	Dimethyl Sulfone	Cobalamin
-IL-1	26	27	3	2
-IL-6	29	84	5	6
-TNF	45	100	4	4
+IL-10	17	46	0	10
-IL-17	19	18	1	5
-COX2	15	23	4	5
-NFkappaB	30	55	6	6

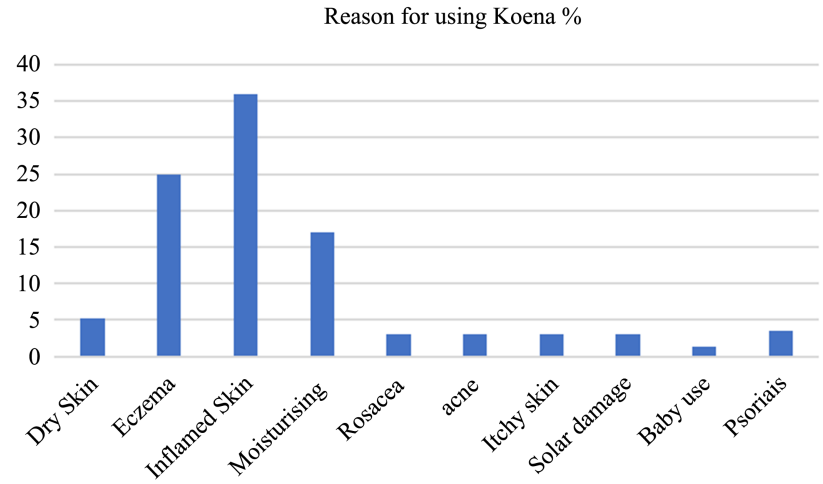

Figure 1. Illustrates, as a percentage of the total number, the reason/condition people were purchasing Koena. The three most common reasons were eczema, inflamed skin, and moisturizing. These three accounted for 75% of the purchases.

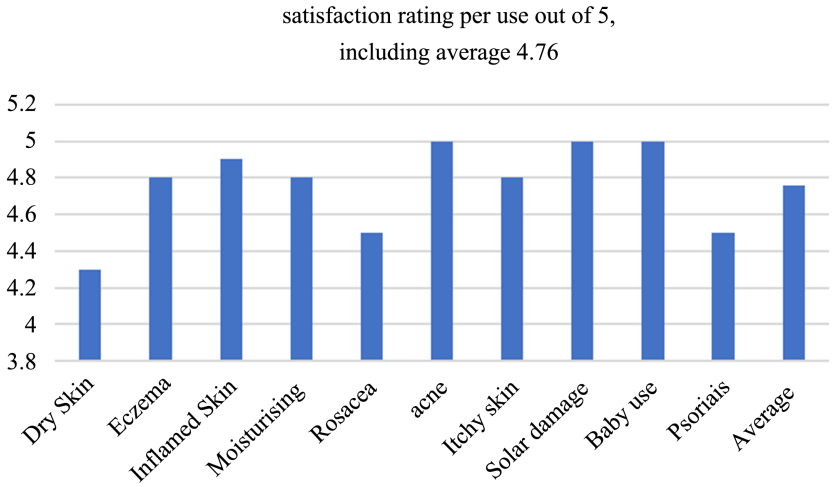

Figure 2. Illustrates the satisfaction rating of the people purchasing Koena. Although the reason for purchasing percentage was low, acne, solar damaged skin and nappy rash had the highest satisfaction rating, of 5/5.

3.1. Female Early Thirties

"*I have a family history of Psoriasis. My father has it, my brother has it. I have had it my whole life, since I can remember, since Primary School, I have had it on my elbows, knees and mostly on my scalp. Pretty much all over the body, there isn't anywhere I haven't had it. I have tried many creams with steroids or without. I have tried Ointments and thick paste creams, smelly lotions, bath oils, pretty much anything I have tried.*

As a child the bath oils used to relieve it, so my mother tells me. Later I found the ointments better as the creams are too thick to get into where I need them, my scalp. There was no resolution with anything, it just came and went but I cannot get rid of it. Sometimes I have it for only a few weeks, but it comes and goes. All my life it has been a battle to get rid of it.

The new cream has been fantastic, it is the first time I have ever had clear skin that does not feel lumpy. Sometimes I can get rid of the redness and the scaliness, but I can still feel it is there and it is rough and dry, where this time it feels like normal skin should. It has worked wonders for my scalp. I would recommend it to others it has done wonders for me."

3.2. Male Thirty

"*It has been a couple of years, two years, it really started with my foot. My little toe grew to be like a big toe. I started getting pains through my whole body, then after going to a GP about 9 times, then a Specialist he found out I had Psoriatic Arthritis. I don't know how it started but I used to run a lot. Then I could not run because of my foot. I had pains over the major limbs in my body. I went to the hairdresser, and she said you have got Psoriasis, I had never heard of it, never knew what it was, I just thought you would get a shampoo and get rid of it. That was what she suggested, it did not go away so I didn't bother, and it took two years to get a diagnosis.*

Then the doctor put me on a medication, a low dose. I had blood tests every month to see how it progressed from there. That is really all I have done at that stage, 2 *pills in the morning and* 2 *pills at night with food. If I did not take the pills, missed a dose I would still be in pain. If I wanted to kick a ball or jump on the trampoline, I would have a lot of pain and could not do it and I have a high pain threshold.*

The cream has been revolutionary and it's just amazing. I can now jump on the trampoline and kick a ball without shoes on. Sure, there is a little bit of pain, but we are talking about nothing compared to what it was just on the doctor's pills.

It has certainly changed my life. The cream has got rid of the flakes and the redness on the scalp has almost cleared up. It has certainly made a huge difference on the Psoriasis."

3.3. Father

"*My son went fishing with friends and when he returned, he was covered in mosquito bites which caused him a lot of pain and itching. We applied Koena cream to the bites and within* 10 *minutes he had good relief from the pain and the itching. Later, showering, we noticed the bites had almost disappeared. We did notice however a couple of bites that were still inflamed and realized that these were not evident when we applied the Koena and were not treated. The difference between the treated bites and the non-treated ones was substantial.*"

3.4. Female Middle Age

"*In the Garden I was stung by a big black ant* (**Figure 3**)*. It really hurt and itched a lot. I put Koena cream on the bite and within 10 minutes the pain and the redness had disappeared.*"

Figure 3. Illustrates a photograph of a before and after response from the use of a Koena application after a black ant bite.

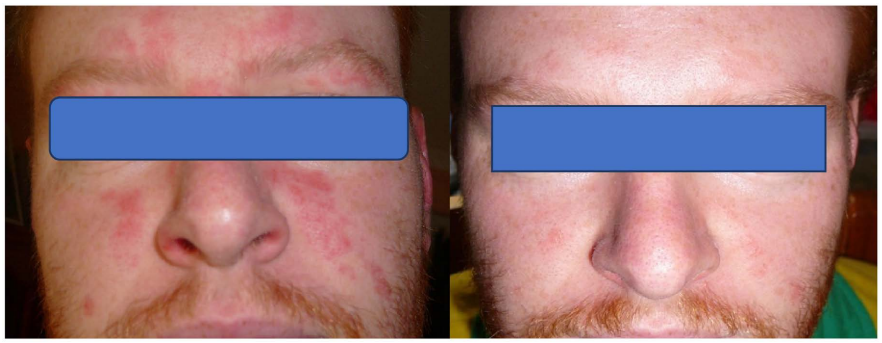

Figure 4. Illustrates the before and after photographs of a male with *Seborrheic dermatitis.* The resolution of the condition using Koena has helped greatly with the social Isolation of this individual.

3.5. Koena and Destigmatising Skin Conditions

Figure 4 shows photographs of a male, late 20s, who is suffering from *Seborrheic dermatitis. The social stigma of these conditions is quite profound and this man, despite getting steroid treatment from his doctor, found it difficult to go out. After using Koena for just over a week, his face and demeanor changed, due to the resolution of his condition.*

4. Conclusions

We have seen an increase in incidence of inflammatory skin disorders during the COVID-19 epidemic. This was mainly associated with increased hand washing and the wearing of personal protective equipment. In attempting to manage this increase, people have turned to new approaches, and this includes multitherapy anti-inflammatory creams, such as Koena. There are many cytokines involved in the development of inflammatory skin disorders, including TNF, IL-1, IL-6, IL-10, and IL-17. Koena was found to reduce the impact of these cytokines directly improving certain skin disorders. Koena also was found to modify the transcription factor, NF Kappa B which leads to a reduction in cytokine produc-

tion. The reviews summarized in this paper illustrate the breadth of use of the Koena suite of products and similar small molecule anti-inflammatory topical treatments.

Notes:

- In accordance with the declaration of Helsinki, this report ensured that participants who gave their review data did so with anonymity and the assessment for the responses reflected dignity, integrity, right to self-determination, privacy, and confidentiality of personal information.
- There were no inducements, implied or otherwise, given to the participants.
- There was no interest in the development of the document other than academic exercise.
- This paper received no financial support from any source.
- Limitations of study. There was no incentive to provide a review via the website, consequently there could be a bias associated with only positive people bothering to do the review. However, it is often seen that people who have a bad experience will take the time to review a product. It is considered that the positive and negative reviews, therefore, balance out.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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