

Effectiveness of Herbal Medications in the Treatment of Acne Vulgaris – A Pilot Study

Gopal, M.G., MD,

Professor & Head of the Department, Department of Skin and VD, Kempe Gowda Institute of Medical Sciences, V.V. Puram, Bangalore,
and

Farahana, B., M.B., B.S. DVD,

Consultant Dermatologist, Ameena Medical Centre, 111, 18th Cross, Laxmipuram, Ulsoor, Bangalore, India.

[Corresponding author: **Dr. Kala Suhas Kulkarni, MD,**

Medical Advisor, R&D Center, The Himalaya Drug Company, Makali, Bangalore, India]

ABSTRACT

A clinical trial was conducted in patients with grade II and III acne vulgaris. Seventy six patients aged between 16 to 24 years were included in the trial. They were advised to apply locally a herbal medication known as Clarina cream and simultaneously to take herbal Purim tablets at a dose of 2 tablets twice a day for a month. Results showed that patients with grade II acne had an excellent response in 56.25% and good response in 43.75%. Patients with grade III acne had an excellent response in 38.30% and good response in 56.66% and moderate response in 5%. These results show that Purim tablets and Clarina cream can be a useful combination treatment in patients with grade II and III acne vulgaris. There were no serious adverse reactions in any of these patients.

KEY WORDS: Acne vulgaris, comedolytic, Clarina, Purim, Propionibacterium acne.

INTRODUCTION

Acne vulgaris is an extremely common skin disorder that affects virtually all individuals at least once during life. The incidence of acne peaks at teenage, but substantial numbers of men and women between 20-40 years of age are also affected by the disorder¹. Acne can have important negative psychosocial consequences for the affected individual, including diminished self-esteem, social withdrawal due to embarrassment and depression².

Acne is a disorder of the sebaceous follicles, which are specialised pilosebaceous units located on the face, chest and back. They consist of sebaceous glands associated with small hair follicles. Several factors contribute to the pathogenesis of acne, such as sebum, abnormal follicular differentiation, *Propionibacterium acnes*, etc.

Sebum, the lipid-rich secretion of sebaceous glands, has a central role in the pathogenesis of acne and provides a growth medium for *P. acne*. People with acne have higher rate of sebum production than unaffected individuals. Moreover, the severity of acne is generally proportional to the amount of sebum production³. Enlargement of the sebaceous glands and increased production of sebum is

stimulated by the increase in production of adrenal and gonadal androgens that precedes the clinical onset of puberty. The first signs of acne vulgaris commonly occur at the time of puberty⁴.

Topical therapy is indicated for patients with non-inflammatory comedones or mild to moderate inflammatory acne. Medications used in topical treatment may act primarily against comedones (comedolytic agents) or inflammatory lesions like antibacterials and antibiotics. Tretinoin is the most effective available topical comedolytic agent. Topical application of tretinoin can lead to local irritation (erythema, peeling, burning). Systemic treatments for acne vulgaris include oral antibiotics, isotretinoin and hormonal agents, either as single agents or simultaneous treatment.

Purim has hepatoprotective herbs, which help to eliminate various toxins present in the blood and improve digestion and blood circulation. It has also anti-inflammatory and antibacterial properties.

Clarina cream acts topically as an astringent, anti-inflammatory and antibacterial agent. In an experimental trial *Aloe barbadensis* exhibited topical anti-inflammatory activity equivalent to hydrocortisone⁵. *Alternanthera sessilis* contains very high amounts of carotene, which is a potent antioxidant⁶. Clinical trials conducted using acne gels containing zinc showed that at the end of the test period there was a significant difference in the reduction of inflammatory and non-inflammatory lesions⁷. The extract of *Rubia cordifolia* has been shown to possess significant inhibitory properties in experimentally induced lipid peroxidation⁸. Borax, which is present in Clarina cream, acts as an astringent.

Purim tablets contain different herbs. *Picrorrhiza kurroa* has hepatoprotective and hepatic stimulant properties. In a randomised, double-blind placebo controlled trial in patients with acute viral hepatitis, a 375 mg extract was administered three times a day for 2 weeks. Inhibition of bilirubin, SGOT and SGPT was significant⁹. *Andrographis paniculata* has andrographolide as an active principle, which acts as an anti-inflammatory agent¹⁰. Studies have shown that *Eclipta alba* has potent hepatoprotective activity, the mechanism of action being the regulation of the levels of hepatic microsomal drug metabolising enzymes¹¹. *Tinospora cordifolia* is found to possess immunomodulatory activities¹². *Saussurea lappa* has many active principals which act as an anti-inflammatory drug, it acts by inhibiting the production of inflammatory mediators and the proliferation of lymphocytes¹³. *Embelia ribes* was found to be effective as an analgesic by oral, i.m. and i.v. routes and the results are comparable with morphine¹⁴. In a study on the wound healing properties of *Curcuma longa*, it was observed that there was faster wound closure of punch wounds in curcumin-treated animals in comparison with untreated controls. Biopsies of the wound showed re-epithelialization of the epidermis and increased migration of various cells including myofibroblasts, fibroblasts, and macrophages in the wound bed. Multiple areas within the dermis showed extensive neovascularization¹⁵. *Azadirachta indica* has antibacterial activity against a variety of micro-organisms such as *Staphylococcus*, *Enterococcus*, *Pseudomonas*, *Escherichia*, *Klebsiella*, *Salmonella* and *Mycobacterium*¹⁶. A study was done to assess various plants for antibacterial properties. Among them *Cassia fistula* showed significant antibacterial activity against various bacteria¹⁷. The growth curve of *Staphylococcus aureus* in a liquid medium with and without

bakuchiol, the main component of *Psoralea corylifolia* also displayed the antibacterial properties of the herbal ingredient *in vitro*¹⁸.

MATERIAL AND METHODS

A clinical trial was initiated to evaluate the efficacy of Clarina cream given along with Purim tablets in patients with Grade II and III acne vulgaris. Patients with Grade I acne vulgaris were not included in the trial as they can be easily treated with locally available anti-acne creams. Since patients with Grade IV acne vulgaris have pustules that are filled with puss and thus require intensive treatment with antibiotics, they were excluded from the trial.

Seventy-six patients between 16-24 years of age with grades II and III acne vulgaris were selected for the study. There were 30 males and 46 females, of which 16 patients had grade II acne, i.e. with comedones and papules and 60 patients had grade III acne, i.e. with comedones, papules and pustules. An informed consent was taken before enrolling them into the clinical trial. Purim tablets were recommended at a dosage of 2 tabs twice daily along with simultaneous application of Clarina cream on the affected area 2-3 times a day. They were advised to come for follow-up every week for 4 weeks. Severity and relief of symptoms and acne lesions were recorded at every follow-up. After 4 weeks of treatment, the results were compared to the pre-treatment levels.

RESULTS

Sixteen patients with grade II acne reported after one week of treatment. There was moderate improvement in 9 patients, good improvement in 5 patients, 1 patient had excellent response and 3 did not show any response. After 2 weeks, there was good improvement in 9 patients and 6 had excellent improvement. At the end of 4 weeks, 9 had no lesions of acne vulgaris.

	1 st week	2 nd week	4 th week
Moderate	56.25 (%)	6.25 (%)	-
Good	13.25 (%)	56.25 (%)	43.75 (%)
Excellent	6.25 (%)	37.50 (%)	56.25 (%)

In grade III acne, 47 had moderate response, 7 had good response and there was no improvement in 6 patients after one week. Subsequently excellent response was observed in 3 patients, good response in 47 patients and there was moderate response in 10 patients after 2 weeks of therapy. After 4 weeks of treatment, 23 patients showed excellent response, 32 had good response and in 3 patients there was moderate response.

	1 st week	2 nd week	4 th week
Moderate	78.33 (%)	16.66 (%)	5 (%)
Good	11.66 (%)	78.33 (%)	56.66 (%)
Excellent	-	5 (%)	38.33 (%)

The above results indicate that 4 weeks of treatment with Clarina cream and Purim tablets is good therapy in patients with acne vulgaris.

DISCUSSION

Oral antibiotics used in the treatment of severe acne, grades III and IV, include tetracyclines (tetracycline, doxycycline, minocycline), erythromycin and co-trimoxazole. However, there are

several adverse effects associated with tetracycline therapy¹⁹. It commonly produces gastrointestinal upsets (e.g. vomiting, diarrhoea) and vaginal candidiasis through changes in the mucocutaneous bacterial flora. Benign intracranial hypertension is a rare but important adverse effect of therapy with all tetracycline-group medications.

Minocycline is more effective in the treatment of acne than tetracycline or doxycycline, but its widespread use as first-line treatment is precluded by the high cost. Minocycline can cause reversible vestibular disturbance (e.g., dizziness, vertigo and ataxia). Minocycline causes a blue-grey discolouration of the skin, particularly in areas that are inflamed. Hepatitis and reactions resembling serum sickness and lupus have also been reported in association with use of the tetracyclines, particularly minocycline²⁰.

Erythromycin and co-trimoxazole offer alternative treatments. Although erythromycin and tetracycline are equally effective in the treatment of inflammatory acne²¹, erythromycin is chosen in practice less frequently because of the frequent emergence of resistant strains of *P. acnes* (the presence of which is often associated with treatment failure)²². It also causes intolerable gastrointestinal side-effects in many patients. Co-trimoxazole effectively treats inflammatory acne; however, the potential for serious, though rare, side effects including hypersensitivity reactions (e.g., toxic epidermal necrolysis) and bone-marrow suppression generally limits its use to patients who have responded inadequately to the more commonly used oral antibiotics²³. Although oral clindamycin improves inflammatory acne, its use in this setting has been virtually abandoned because of its association with pseudomembranous colitis²⁴.

Hormonal treatment improves acne by decreasing androgen-induced sebum production. Hormonal therapy may be indicated for women with characteristics that suggest a significant hormonal influence, i.e. inadequate response to other acne treatments, acne that begins or worsens in adulthood, premenstrual flares of acne, excessive facial oiliness, inflammatory acne limited to the area of male beard distribution and acne accompanied by mild to moderate hirsutism. However, long-term side effects have limited their use.

Since the present line of treatment is associated with the above side effects this trial, which was conducted using alternative herbal medications showed promising results.

CONCLUSION

In this trial, we observed that in grade II acne, 56.25% of the patients had moderate response in the first week itself, 13.25% had good response and excellent response was obtained in 6.2% of the patients. In the second week, 37.50% had an excellent response and 56.25% had a good response. And at the end of 4th week, there was excellent response in 56.25% and 43.75% had good response.

In third degree acne, there was only moderate response in the majority of patients during 1st week. In the second week, 78.33% had a good response. At the end of the third week, an excellent response was seen in 38.33% with a complete absence of lesions, and a total of 56.66% had a good response.

Thus, significant symptomatic relief was noted with 4 weeks of treatment with Clarina cream and Purim tablets, administered concurrently. The results in this clinical trial show that Clarina cream and Purim tablets can be safely given to patients with acne.

REFERENCES

1. Cunliffe W.J., Gould D.J., Prevalence of facial acne in late adolescence and in adults. *Br J Dermatol* 1979;1:1109-10.
2. Koo J., The psychosocial impact of acne: Patient's perceptions. *J Am Acad Dermatol* 1995;32:S26-S30.
3. Pochi P.E., Strauss J.S., Endocrinologic control of the development and activity of the human sebaceous gland. *J Invest Dermatol* 1964;43:383-88.
4. Rothman K.F., Lucky A.W., Acne vulgaris. *Adv Dermatol* 1993;8:347-74.
5. Hutter J.A., Salam M., Stavinoha W.B., et al., Anti-inflammatory C-glucosyl chromone from *Aloe barbadensis*. *J Natural Products* 1996;59(5):541-43.
6. Devadas Rajammal P., Chandrasekhar U., Premakumari S., et al., Consumption pattern of carotene rich foods and development of a year calendar. *Biomed Environ Sci* 1996;9(2-3):213-22.
7. Papageorgiou P.P., Chu A.C., Chloroxylonol and zinc oxide containing cream (Nels cream) vs. 5% benzoyl peroxide cream in the treatment of acne vulgaris. A double-blind, randomised, controlled trial. *Clin Exp Dermatol* 2000;25(1):16-20.
8. Tripathi Y.B., Sharma M., The interaction of *Rubia cordifolia* with iron redox status: A mechanistic aspect in free radical reactions. *Phytomedicine* 1999;6(1):51-7.
9. Vaidya A.B., Antarkar D.S., Doshi J.C., et al., *Picrorhiza kurroa* (Kutki) Royle ex Benth as a hepatoprotective agent – experimental and amp; clinical studies. *J Postgrad Med* 1996;42(4):105-8.
10. Chiou W.F., Chen C.F., Lin J.J., Mechanisms of suppression of inducible nitric oxide synthase (iNOS) expression in RAW 264.7 cells by andrographolide. *Br J Pharmacol* 2000;129(8):1553-60.
11. Saxena A.K., Singh B., Anand K.K., Hepatoprotective effects of *Eclipta alba* on subcellular levels in rats. *J Ethnopharmacol* 1993;40(3):155-61.
12. Kapil A., Sharma S., Immunopotentiating compounds from *Tinospora cordifolia*. *J Ethnopharmacol* 1997;58(2):89-95.
13. Cho J.Y., Baik K.U., Jung J.H., et al., *In vitro* anti-inflammatory effects of cynaropicrin, a sesquiterpene lactone, from *Saussurea lappa*. *Eur J Pharmacol* 2000;398(3):399-407.

14. Atal C.K., Siddiqui M.A., Zutshi U., et al., Non-narcotic orally effective, centrally acting analgesic from an Ayurvedic drug. *J Ethnopharmacol* 1984;11(3):309-17.
15. Sidhu G.S., Singh A.K., Thaloor D., et al., Enhancement of wound healing by curcumin in animals. *Wound Repair Regen* 1998;6(2):167-77.
16. Fabry W., Okemo P.O., Ansorg R., Antibacterial activity of East African Medical Plants. *J Ethnopharmacol* 1998;60(1):79-84.
17. Perumal Samy R., Ignacimuthu S., Sen A., Screening of 34 Indian medicinal plants for antibacterial properties. *J Ethnopharmacol* 1998;62(2):173-82.
18. Kaul R., Kinetics of the anti-staphylococcal activity of bakuchiol *in vitro*. *Arzneimittelforschung* 1976;26(4):486-9.
19. Reisner R.M., Antibiotic and anti-inflammatory therapy of acne. *Dermatol Clin* 1983;1:385-97.
20. Gough A., Chapman S., Wagstaff K., et al., Minocycline-induced autoimmune hepatitis and systemic lupus erythematosus-like syndrome. *BJM* 1996;312:369-72.
21. Gammon W.R., Meyer C., Lantis S., et al., Comparative efficacy of oral erythromycin versus oral tetracycline in the treatment of acne vulgaris: A double-blind study. *J Am Acad Dermatol* 1986;14:183-6.
22. Eady E.A., Cove J.H., Holland K.T., et al., Erythromycin resistant propionibacteria in antibiotic treated acne patients: association with therapeutic failure. *Br J Dermatol* 1989;121:51-7.
23. Hersle K., Trimethoprim-sulphamethoxazole in acne vulgaris: A double-blind study. *Dermatologica* 1972;145:187-91.
24. Poulos E.T., Tedesco F.J., Acne vulgaris: double-blind trial comparing tetracycline and clindamycin. *Arch Dermatol* 1976; 12:974-6.