



Original Article

Efficacy of Topical Tretinoin, Benzoyl Peroxide and Oral Tetracycline Combination in Acne Vulgaris

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Abstract

This study was done in the outpatient department of Rajshahi Medical College Hospital from January 2004 to December 2005. In this study the efficacy of topical tretinoin, benzoyl peroxide and oral tetracycline was studied in 50 patients. Forty five patients completed the course of treatment and 5 patients were defaulter. Complete remission was seen in 32(71.11%), marked improvement in 08(17.78%) and good response in 05(11.11%) patients. Application of topical tretinoin cream (0.05%) in the evening, benzoyl peroxide cream (5%) in the morning and oral tetracycline (500 mg bd) before meal was found very effective, safe and cheap in the treatment of comedonal, pustular and pustulo-nodular acne vulgaris.

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Introduction

Acne vulgaris is a chronic inflammatory, multifactorial androgen dependent disease of the pilo-sebaceous follicle characterized by comedones, papules, nodules, cysts and often scars^{3, 4}. It has several distinct clinical forms. Of them comedonal, pustular and pustulo-nodular forms are considered as the most severe and distressing.^{3,15} The primary defect in acne is the formation of a keratinous plug in the lower infundibulum of the hair follicle. Acne vulgaris is a follicular disease with comedo formation produced by the impaction and distension of the follicle with tightly packed horny cells.^{3,4,15} Disruption of the follicular epithelium permits discharge of the follicular contents into the dermis. This in turn, causes formation of inflammatory papules, pustules, pustulo-nodular and cystic lesions. Comedo formation is caused by stickiness of the horny cells. Bacterial lipase acts on the sebum to produce

free fatty acid. Free fatty acids are chemotactic to the components of inflammation. Histologically they are characterized by predominant neutrophil infiltration and clinically by prolonged, protracted course, poor staggering response to conventional treatment. Short remission and frequent relapse and at resolution leave behind ugly looking hyperpigmentation and atrophic scar which attribute psychological trauma to the patients and compromise social life.^{3,5,6,7,8} There are so many treatment options for acne vulgaris. We use them alone, two drugs combination or three drugs combination giving due attention to predominant type of lesions, extent of involvement, severity of the disease and ability of the patient to bear the cost of the treatment. They work in majority of the cases. But many patients with most severe inflammatory lesions respond poorly to these conventional therapies.^{9,10,11} Systemic retinoic acid derivatives particularly isotretinoin, 1mg / kg / day had already been established as a gold standard

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treatment for acne vulgaris. But they are very costly & they are well known to their systemic side effects, toxicity including teratogenic potential.^{13,14,15,16} Tetracycline kills the propionibacterium acne. Benzoyl peroxide has sebostatic and keratolytic activity counteracting the hyperkeratinization and excessive sebum secretion associated with acne vulgaris. Benzoylperoxide kills propionibacterium acne by releasing oxygen. Tretinoin works by reducing sebum production, unblocking follicles by normalizing keratinization and by decreasing inflammation by inhibiting leukocyte migration. Theoretically their combination covers all three major areas of acne pathophysiology. Moreover they are relatively cheap, easily available and amenable to our patients. On this background we undertook this study.

Material and methods

Fifty acne vulgaris patients attending Rajshahi Medical College Hospital Skin & VD outdoor over a period of 2 years from January 2004 to December 2005 were included in this study. Patients with comedonal, pustular and pustulo-nodular acne vulgaris were enrolled as per our inclusion criteria. Out of 50 patients 32 were male & 18 were female with age between 15 to 30 years. All of them were treated with oral tetracycline (Cap.Tetrax 500mg b.d) before meal, topical tretinoin (Trinon cream 0.05%) applied over the lesions in the evening and benzoyl peroxide (Caress cream 5%) applied over the lesions in the morning. A willful consent from each patient was taken. Then all the patients were put on our regimen. Planned active follow up was done monthly for 3 months. Then at the end of 6th months. Patients were assessed for response and side effect at each visit. Necessary test was done in some only when indicated clinically. The data was compiled and results analyzed.

Results

Out of 50 patients 45 had completed the course of treatment and 5 patients were defaulted within the first three months. Initially all the patients showed variable positive response with complete

remission in 32 (71.11%), marked improvement in 08(17.78%) and good response in 5 (11.11%) patients. Pustules disappeared completely in all the patients within first 2 to 4 weeks and nodules within first 3 to 4 months. No nodule re-appeared after starting the regimen but few comedones and pustules continued to appear during first 4 months in a gradual diminishing manner. Twelve patients showed exacerbation of their pre existing peptic ulcer presumably from oral tetracycline. Ten patients developed local irritation, burning, erythema and mild desquamation at the beginning of the treatment due to topical tretinoin and benzoyl peroxide. Nine patients continued to suffer from few papules, pustules and nodules even after completion of the treatment. They were treated and cured with a second course of our regimen.

Table -I. Age distribution of patients (n=50)

| Age | No. of patient | Percentage |
|-------|----------------|------------|
| 15-20 | 30 | 60% |
| 21-25 | 15 | 30% |
| 26-30 | 05 | 10% |

Table -II. Sex distribution of patients (n=50)

| Sex | No. of patient | Percentage |
|--------|----------------|------------|
| Male | 32 | 64% |
| Female | 18 | 36% |

Table -III. Efficacy of the combined therapy (n=45)

| Efficacy | No. of patient | Percentage |
|--------------------|----------------|------------|
| Complete remission | 32 | 71.11% |
| Marked improvement | 08 | 17.78% |
| Good response | 05 | 11.11% |

Discussion

This was an open and uncontrolled prospective study. Each patient received our regimen of oral tetracycline (Cap.Tetrax 500mg bd) in empty stomach at night, topical tretinoin (Trinon cream 0.05%) applied over the lesions in the evening and benzoyl peroxide (Caress cream 5%) in the morning for six months. Out of 50 patients 45 completed the course and 5 patients were defaulted from the study. Among the 45 patients who completed the regimen, complete remission was seen in 32(71.11%), marked improvement in 08 (17.78%) and good response in 05 (11.11%)

patients. Although systemic Isotretinoin is a effective and gold standard drug for acne vulgaris but due to its toxic & teratogenic effects we, usually avoid the drug. Moreover the drug is costly & not easily available. It is clearly evident from the study that our regimen is very effective, safe and cheap in the treatment of acne vulgaris. Topical tretinoin and benzoyl peroxide show irritation, burning sensation and erythema in the beginning of the treatment which is mild and subsides within few days. These two topical preparation should not use at the same time. We prescribe topical tretinoin cream in the evening and benzoyl peroxide cream in morning. Gel preparation is more irritating than cream. Washing with soap and water prior to application greatly enhances the efficacy of the topical preparation.

Conclusion

A Combination regimen of oral tetracycline 500 gm bid, topical tretinoin cream (0.05%) in the evening and topical benzoyl peroxide cream (5%) in the morning was found effective, safe, cheap and acceptable to studied patients for the treatment of acne vulgaris.

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