# TREATMENT OF ACNE VULGARIS WITH ORAL TETRACYCLINE

Neena Khanna

Forty four patients with moderately severe and severe acne were put on treatment with either tetracycline 1 g daily (21 patients) or minocycline 100 mg daily (23 patients). Patients were assessed at 6 and 12 weeks by calculating the reduction of the acne lesion score. At 6 weeks with minocycline 47.6% of the patients showed a good response, with tetracycline none of the patients showed a comparable resonse and the difference in the 2 therapeutic groups was statistically significant ($p<0.01$). However, at 12 weeks the response of acne was comparable with the 2 drugs. With tetracycline 70.4% patients and with minocycline 69.6% patients showed a good to excellent response. Similarly, at 6 weeks the mean reduction in acne lesion score was significantly better with minocycline than with tetracycline, but at 12 weeks the response was comparable with the 2 drugs.

**Key Words : Acne vulgaris, Tetracycline, Minocycline**

## Introduction

Tetracycline group of drugs have been the principal oral therapy for acne vulgaris for many years. They primarily reduce the population of *Propionibacterium acnes (P. acnes)*. In addition they also have other effects : keratinisation in the pilosebaceous unit is reduced and free fatty acid levels in the sebum are lowered. Inflammatory reactions are inhibited because of decreased complement activation, reduced polymorphonuclear leucocyte chemotaxis and macrophage phagocytosis and an inhibition of cell mediated immunity.

A major problem with tetracycline therapy is that their absorption from the gut is impaired by food, milk, dairy products, iron salts and antacids. Minocycline, a newer tetracycline congener, is almost totally absorbed from the gut and unlike most other tetracyclines its absorption is only minimally impaire by food and dairy products. It was decide to compare the relative therapeut efficacy of minocycline with the usuall available tetracycline in acne vulgaris.

## Material and Methods

Forty four patients (aged 14-2 years, 21 men, 23 women) wit moderately severe and severe acne wer taken up for the study. Moderately sever acne was defined when the acne lesio score (ALS) in the patients was 30-7 while severe acne was considered in thos patients who had an ALS of more tha 70. Patients of acne conglobata wer excluded because it is often difficult t calculate the ALS in these patients Patients who had taken oral antibiotic were included in the study 1 month afte discontinuing the antibiotics. Wome patients who were pregnant or using or contraceptives were not include Patients with obvious endocrinopath were also not taken up for the study.

Patients were randomly allocated t 1 of the 2 treatment schedules : (

From the Department of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi - 110 029, India.

Address correspondance to : Dr Neena Khanna, A64B Nizamuddin East, New Delhi - 110 013.

tetracycline 500 mg taken twice a day on an empty stomach (21 patients) and (b) minocycline 50 mg twice daily (23 patients). No topical therapy was prescribed for either of the 2 schedules. The patients were followed up for 12 weeks.

The efficacy of the drugs was evaluated at 6 weekly intervals by calculating the ALS. The criterion for effectiveness of the treatment was a reduction in ALS at the end of the stipulated 12 weeks. The improvement was graded as follows : (1) excellent, when there was more than 75% reduction in the ALS, (2) good, when there was 50-74% reduction in the ALS, (3) fair, when there was a 25-49% reduction in the ALS and (4) poor, when there was less than 25% reduction in the ALS.

In addition, the mean reduction in the ALS in each of the 2 therapeutic groups was calculated. The response was statistically evaluated using a paired T test. A P value of less than 0.05 was considered significant.

Patients were questioned regarding the following side effects during their follow up visits : (i) photosensitivity, (ii) light headedness, vertigo, headache and visual distrubances as manifestation of benign intracranical hypertension, (iii) cutaneous and mucosal hyperpigmentation and (iv) muco-cutaneous especially vaginal candidosis.

## Results

The response of acne vulgaris at 6 weeks to treatment with minocycline and tetracycline is shown in Table I. Only 19 patients in the minocycline group could be followed up for 12 weeks. Table II shows the response of acne vulgaris at 12 weeks. One patient developed hyperpigmentation of tongue and another patient developed fixed drug eruption due to minocycline and these side effects required withdrawl of therapy. Another female patient developed vaginal candidosis, but this did not necessitate withdrawl of therapy as the infection could be treated with topical antifungal therapy in conjunction with vaginal pessaries. Two patients were lost to follow-up. Fifteen patients in the tetracycline group could be followed-up for 12 weeks. One patient developed severe vaginal candidosis and did not want to continue treatment with tetracycline. Three patients were dissatisfied with the response to tetracyclines and had to be put on other treatment, while 2 patients were lost to follow-up. The response of acne to treatment with tetracycline at 12 weeks is shown in Table II.

The mean ALS at 6 weeks and 12 weeks after minocycline and tetracycline

**Table I.** Response of acne to treatment with minocycline and tetracycline at 6 weeks (%)

| Drug (no. of pts.) | Excellent | Good | Fair | Poor | Worse |
|---|---|---|---|---|---|
| Minocycline (23) | | 11 (47.8%) | 11 (47.8%) | - | 1 (4.4%) |
| Tetracycline (21) | | | 17 (80.9%) | 3 (14.3%) | 1 (4.7%) |

**Table II.** Response of acne to treatment with minocycline and tetracycline at 12 weeks (%)

| Drug (no. of pts.) | Excellent | Good | Fair | Poor | Worse |
|---|---|---|---|---|---|
| Minocycline (23) | 6 (26.1%) | 12 (43.5%) | 1 (4.3%) | - | - |
| Tetracycline (21) | 5 (23.8%) | 10 (47.6%) | - | - | - |

therapy is shown in Fig. 1. It was found that at 6 weeks the reduction of ALS with

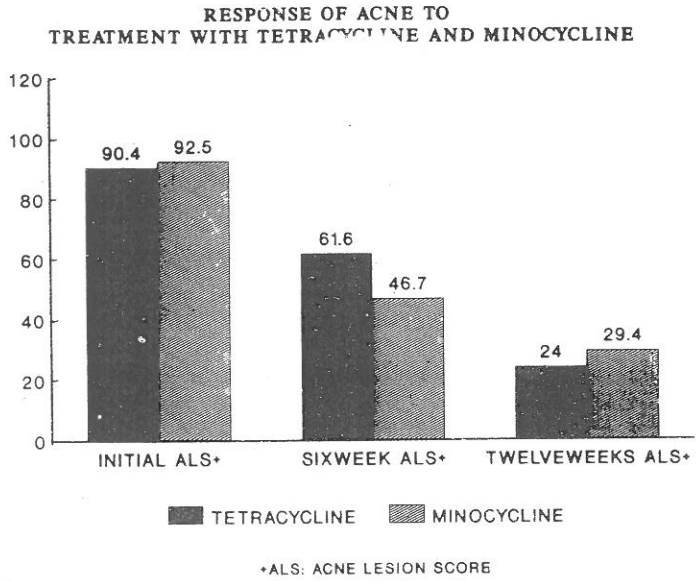


Fig. 1 A L S initially, at 6 weeks and 12 weeks after therapy

minocycline was statistically superior to that with tetracycline ($p<0.001$). However, at 12 weeks, the response of acne to both the drugs was statistically similar ($p>0.05$).

## Comments

Minocycline may have a therapeutic edge on other tetracyclines due to its more reliable absorption from the gut and its greater penetration into the pilosebaceous unit.[1] Minocycline also has greater antibacterial activity *in vivo* against both staphylococci and propionibacteria and produces less staphylococcal antibiotic resistance than tetracycline.[2]

Leyden et al[1] demonstrated that 6 weeks therapy with minocycline 100 mg daily produced a greater fall in *P. acnes* count, skin surface free fatty acid levels and acne lesions clinically than 500 mg of tetracycline twice daily for 6 weeks. Interestingly the reduction of *P. acnes* count persisted even 3 weeks after discontinuation of minocycline therapy. A similar persistance of reduction of skin surface free fatty acid levels and clinical lesions was also seen with minocycline therapy. In another study, Hubbell et al found that the response of acne to minocycline, 50 mg twice a day was superior to that of tetracycline 250 mg twice a day. Cullen et al[4] in a double blind study of 100 patients over a period of 16 weeks found that 80% of the tetracycline group and 86% of the minocycline group achieved a satisfactory response. In a subsequent study,[5] Cullen found low dose minocycline effective in tetracycline resistant acne.

In the present study the response of acne was significantly faster with minocycline than with tetracycline. However, at 12 weeks the response of acne to tetracycline and minocycline was similar. Therefore, it may be possible to reduce the duration of systemic therapy with minocycline. As seen in earlier studies also side effects were not a significant problem with minocycline.

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