ORAL ZINC IN ACNE VULGARIS
(a double blind evaluation)

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Effect of oral zinc sulphate was studied in 42 patients with various clinical grades of acne in a double blind manner. Administration of oral zinc sulphate (220 mg) twice a day for three months proved no more beneficial than the placebo. No significant reduction was found in the sebum secretion rate in 18 patients. None of the patients had any major side effects with zinc therapy. Oral zinc sulphate was found to be ineffective at least in comedones and papules.

Key words : Acne vulgaris, Zinc sulphate, Sebum secretion rate.

Oral zinc sulphate for the treatment of acne vulgaris has been evaluated by many workers, but the results have been contradictory. Several workers reported beneficial effect[1-5] whereas some others[6,7] have found it not useful. The effect of oral zinc on sebum secretion is also not clear. Demetree et al[8] found statistically significant decrease in the sebum production after zinc therapy. Because of the inconsistent reports in the literature, oral zinc sulphate was tried in acne vulgaris patients in a double blind manner. Its effect on sebum secretion was also evaluated.

Materials and Methods

A total of 42 patients (31 males and 11 females) with various clinical grades of acne were selected for study. None of the patients had any other systemic disease or medical treatment for acne during previous 6 weeks. Subjects were instructed not to use any other medication which could interfere with the trial. Each patient was examined by the same investigator every fortnight.

For clinical evaluation, acne lesions were counted repeatedly at each visit. The severity of the disease was calculated by multiplying the number of each type of acne lesion with its severity index (Table I) and adding each sum. Apart from counting the lesions, the effect of therapy was also assessed subjectively.

Table I. Acne lesions and their severity index.

Lesions	Index
Comedones	0.5
Papules upto 5 mm	0.75
Papules more than 5 mm	1.00
Pustules upto 2 mm	1.50
Pustules more than 2 mm	2.00
Nodules	3.00
Cysts	4.00

Precoded (A or B) zinc sulphate (220 mg) or placebo in capsule form were given to acne patients at random to be taken twice daily after meal for 12 weeks. The trial was a double blind throughout the study period. The sebum secretion rate was estimated in 18 patients (10 from group A and 8 from group B) by paper absorbant method of Strauss and Pochi[9] modified by Cunliffe and Shuster[10] before and after three months of treatment.

Results

Out of 42 patients, 35 completed the trial. Five patients failed to report, while 2 had untoward side effects and did not continue the trial. Eighteen patients had placebo (group A) while 17 patients had zinc sulphate (group B).

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Both the groups were completely matched in all aspects.

Subjective improvement was noted in 43% of the patients irrespective of the type of treatment (Table II). There was no significant difference in the two groups before and after

Table II. Subjective evaluation of oral zinc therapy in acne.

Response	Number of patients (percentage) treated with	
	Placebo	Zinc sulphate
Better	7 (38.9%)	8 (47.1%)
No change	6 (33.3%)	3 (17.6%)
Worsening	5 (27.8%)	6 (35.3%)

treatment regarding subjective improvement (Table II) and severity of the disease (Table III). The mean sebum secretion rate was decreased in both the groups though, significant statistically in zinc treated group only (Table III).

Table III. Severity index and sebum production in oral zinc therapy.

	Before treatment		After treatment	
	Placebo	Zinc	Placebo	Zinc
Severity index	53.0	47.0	43.5	42.5
Mean±SD	±38.1	±28.4	±40.8	±20.8
Sebum production	.0072	±.0067	±.0054	.0048
Mean±SD	±.0047	±.0031	±.0030	±.0011*

Sebum secretion rate expressed in gm/69×37min/3hrs.
* Statistically significant.

There was satisfactory improvement in all five cases with the severity index of 2 to 4, that is acne patients with pustules of more than 2 mm, nodules and cysts after oral zinc therapy. None of the patients had any major untoward side effects to zinc therapy except mild gastrointestinal symptoms such as nausea, anorexia etc, which subsided on continuation of the trial in most of the cases.

Comments

Michaelsson et al[1] found a significant decrease in acne lesions after 4 weeks of treatment and the mean score had decreased from 100% to 15% after 12 weeks. Hillstorm et al[2] in a double blind trial, found a significantly better effect with zinc than placebo. Similar effectiveness has also been reported by Goransson et al[3] and Verma et al[5]. None of them however, could describe the mechanism of action of oral zinc. On the other hand, Weismann et al[6] and Orris et al[7] found that zinc was no more effective in acne. We also did not find any beneficial effect of oral zinc in mild acne, however satisfactory improvement was seen in acne patients with pustules, nodules and cysts. To prove the effect if any, a further trial on a larger number is needed. Like Demetree et al,[8] we have also noted sigificant decrease in sebum production after zinc therapy.

References

1. Michaelsson G, Juhlin L and Vahlquist A : Effects of oral zinc and vitamin-A in acne, Arch Dermatol, 1977; 113 : 31-36.
2. Hillstorm L, Pitterson L, Hellbe et al : Comparison of oral zinc sulphate and placebo in acne vulgaris, Brit J Dermatol, 1977; 97 : 681-684.
3. Goransson K, Liden S and Odsell L : Oral zinc in acne vulgaris. A clinical and methodological study, Acta Dermato-Venereol, 1978;: 58 443-448.
4. Cunliffe WJ, Bruke B, Dodman B et al : A double blind trial of zinc sulphate/citrate complex and tetracycline in the treatment of acne vulgaris, Brit J Dermatol, 1975; 101 : 321-325.
5. Verma KC, Saini AS and Dhamija SK : Oral zinc sulphate therapy in acne vulgaris : A double blind trial, Acta Dermato-Venereol, 1980; 60 : 334-340.
6. Weismann K, Wadskov S and Sondergaard J : Oral zinc sulphate therapy for acne vulgaris, Acta Dermato-Venereol, 1977; 57 : 357-360.
7. Orris L, Shatite AR, Sibulkin B et al : Oral zinc therapy of acne. Absorption and clinical effects, Arch Dermatol, 1978; 114 : 1018-1020.
8. Demetree JW, Safer LW and Artis WM : The effect of zinc on the sebum secretion rate, Acta Dermato-Venereol, 1980; 60 : 165-169.
9. Strauss JS and Pochi PE : The quantitative gravimetric determination of sebum production, J Invest Dermatol, 1961; 36 : 293-298.
10. Cunliffe WJ and Shuster S : The rate of sebum secretion in man, Brit J Dermatol, 1969; 81 : 697-704.