

THE USE OF TOPICAL VITAMIN A ACID IN ACNE VULGARIS IN SINGAPORE

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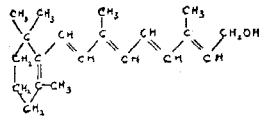
Summary

A clinical trial of topical vitamin A acid was undertaken on 88 patients suffering from acne vulgaris in a private dermatological practice. The majority of patients were ethnic Chinese. 22 patients were treated with a 0.05% alcoholic solution and 66 patients with a 0.05% cream preparation of vitamin A acid. Both forms of vitamin A acid were found to be effective, particularly in cases presenting with comedones and papules. 86% of the patients in this series were successfully treated. Local reactions, mainly erythema and peeling, were observed in a majority of cases treated. Local reactions were temporary, and in most cases treatment could be successfully continued with a lower frequency of applications. The cream preparation had less severe reactions and was better accepted by the patients.

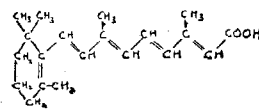
For a long time Vitamin A has been administered systemically in the treatment of Acne Vulgaris for its beneficial effect on keratinization. It is usually prescribed for patients with excessive comedones. However, therapeutic doses of systemic Vitamin A is high and the problems of side effects of hypervitaminosis A deters its long term use in a benign condition like acne. Vitamin A in a topical form has not been found efficacious. Recently the acid form of Vitamin A (Retinoic Acid) has been tried out and found beneficial in various dermatoses with altered keratinization such as Darier's Disease, ichthyosiform erythroderma and acne vulgaris (Stut-

tgen 1962, Beer 1962, Thomas and Milne 1969, Kligman 1969, Plewig 1971).

Vitamin A and Vitamin A Acid have the following formulae:—



Vitamin A



Vitamin A Acid

In Singapore, Vitamin A Acid is available commercially in the form of 0.05% solution and 0.05% cream. Reports of beneficial effects of topical Vitamin A Acid in the treatment of acne vulgaris have been confined to experience in Caucasians. No reports on Asian patients have appeared at the time of the present trial. This is the first report of its use in Singapore.

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Material and Method

This is an open clinical trial of the use of 0.05% in alcoholic solution and 0.05% in cream base of Vitamin A Acid on acne patients in a private dermatological practice in Singapore. Acne patients form 12% of the total patients (602 out of 5000 consecutive patients) in this practice. 22 patients are given at random the alcoholic solution and 66 patients are given at random the cream form. The vast majority (77/88) are Chinese patients. There are 5 Caucasians, 2 Indians, 3 Malays and 1 Eurasian. The trial is primarily intended to assess the efficacy and side effects in the treatment of the two forms of Vitamin A Acid in the provided strength in the local population. The proportion of the various races in the trial corresponds very closely to their proportion in the total population in Singapore. The patients are advised to apply the solution with a cottontip stick and the cream is massaged gently with the finger-tips on to the individual lesions. The patients are asked to apply the solution or cream nightly at first and to adjust the frequency on the advice of the dermatologist according to the clinical response. The patients are told to expect some reaction and to report the severity as absent (0), mild (1), moderate (2) or severe (3). The lesions are examined before treatment, and at 1 to 2 weekly intervals. The lesions are classified into comedones (C), papules (P), pustules (S) and nodules (N), and the severity of the lesions estimated by the number of lesions present :

- 0 = no lesions
- 1 = 1 to 2 lesions/100 cm²
- 2 = 2 to 5 lesions/100 cm²
- 3 = 5 to 10 lesions/100 cm²
- 4 = more than 10 lesions/100 cm²

The patients are asked to stop applying the solution or cream for one

to two nights if the side effects are intolerable and to resume at a lesser frequency afterwards.

Result (Tables 1 and 2)

0.05% alcoholic solution of Vitamin A Acid causes a mild to severe reaction in vast majority of patients in the trial. 18% (4/22) have severe reaction with severe itching or pricking pain, erythema, oedema and peeling of the area applied with the solution. 9% (2/22) have moderate reaction, with erythema and scaling and a prickly sensation. 41% (9/22) have a mild reaction with mild erythema and sensation of heat. Only 4.5% (1/22) have no visible reaction or symptom. 6 patients (27%) fail to report for assessments of reaction. In the patients using the cream form there are severe reactions in only 3 cases (5%). The majority consists of 16 moderate reactions (24%), 12 mild reactions (18%) and 29 with no reaction (44%). There are 6 patients on creams (9%) who fail to turn up for assessment. The severe reactors require temporary cessation of therapy for one week or more, but are able to resume therapy with less frequent applications, with excellent results in clearing up the comedones and papules. There is a great variation in individual tolerance to the application of the solution. Some react severely to one application per day, whereas some can tolerate 2 applications a day with only a mild reaction. The reaction to the cream is generally less severe and less cases require cessation of therapy even temporarily. The lesser number of patients failing to report for assessment in the cream series also reflects a better tolerance to the cream form.

There is a tendency to clear up the lesions more rapidly when the reactions are severe. The author confirms the experience of others in the observation that comedones appear to mature more rapidly into papules and sometimes into

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TABLE 1
(0.05% Vit A Acid in Alcohol)

Sex	Race	Age in years	Severity before treatment C P S N	Result after treatment	Duration of treatment	Reaction
M	Ch	17	4-0-0-0	0-0-0-0	22 weeks	1
F	Ch	32	4-1-0-0	Interrupted	1 week	?
F	Ch	11	4-2-0-0	0-1-0-0	17 weeks	1
F	Ch	22	3-4-1-0	0-2-0-0	3 weeks	3
M	Ch	21	4-4-3-0	Interrupted	1 week	?
M	Ch	24	2-2-0-0	0-1-1-0	9 weeks	0
F	Ch	19	4-2-0-0	Interrupted	1 week	?
M	Fr	25	4-4-3-0	Interrupted	1 week	?
M	Ml	13	4-3-3-0	0-1-0-0	15 weeks	3
M	Ch	15	4-4-0-0	0-0-0-0	15 weeks	3
F	Ch	21	4-3-0-0	0-1-0-0	18 weeks	1
F	Am. C	25	0-3-0-0	Interrupted	1 week	?
M	It	30	0-3-2-0	0-0-1-0	10 weeks	1
F	Ch	13	4-4-0-0	3-0-0-0	2 weeks	1
F	Ch	19	4-1-0-0	0-1-0-0	10 weeks	1
F	Eu	22	4-4-1-0	4-3-0-0	2 weeks	1
F	Ch	19	2-0-0-0	0-0-0-0	4 weeks	1
F	Ch	11	4-3-0-0	4-2-0-0	2 weeks	3
F	Ch	21	4-0-0-0	0-0-0-0	10 weeks	2
M	Ml	24	0-4-1-0	0-3-0-0	2 weeks	2
F	Eu	25	3-2-0-0	0-1-0-0	4 weeks	1
F	Ch	19	3-3-0-0	Interrupted	1 week	?

Abbreviations:

F	— Female	Lesions	Reactions	Lesions: Types
M	— Male	Severity grades:	Severity:	C — Comedones
Ch	— Chinese	4 — More than 10 lesions/100 cm ²	3 — severe	P — Papules
Ml	— Malay	3 — 5 to 10 lesions/100 cm ²	2 — moderate	S — Pustules
Fr	— French	2 — 2 to 5 lesions/100 cm ²	1 — mild	N — Nodules or cysts
It	— Italian	0 — 0 lesions	0 — No reaction	
Eu	— Eurasian			
Am. C	— American Caucasian			
Au. C	— Australian Caucasian			

TABLE 2
(0.05% Vitamin A Acid Cream)

Sex	Race	Age in years	Severity before treatment C P S N	Result after treatment C P S N	Duration of treatment	Reaction
F	Ch	30	2-2-0-0	Interrupted	1 week	?
F	Ch	16	3-2-2-0	0-1-1-0	28 weeks	0
F	Ch	20	3-2-0-0	Interrupted	1 week	?
F	Ch	23	2-2-0-0	0-0-0-0	9 weeks	0
F	Ch	14	3-1-0-0	1-1-0-0	12 weeks	1
M	Au C	29	4-3-1-0	2-2-1-0	2 weeks	1
F	Ch	21	4-1-0-0	1-0-0-0	9 weeks	2

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Sex	Race	Age in years	Severity before treatment C P S N	Result after treatment C P S N	Duration of treatment	Reaction
M	Ch	17	4-2-0-0	Interrupted	1 week	?
F	Ch	23	4-1-0-0	2-1-0-0	11 weeks	1
F	Ch	23	2-0-1-1	0-1-0-0	20 weeks	1
F	Ch	19	1-2-0-0	0-1-0-0	4 weeks	2
F	Ch	17	4-3-0-0	1-0-0-0	18 weeks	2
M	Ch	15	4-4-0-0	Interrupted	1 week	?
F	Ch	12	3-3-0-0	0-1-0-0	8 weeks	0
M	Ch	31	3-2-0-0	Interrupted	1 week	?
F	Ch	19	4-1-1-0	0-0-1-0	4 weeks	2
F	Ch	25	4-1-0-0	0-1-0-0	33 weeks	1
F	Ch	21	3-0-0-0	0-1-0-0	4 weeks	0
M	Ch	15	3-1-0-0	0-1-1-0	6 weeks	2
F	Ch	22	4-0-0-0	2-0-0-0	4 weeks	0
F	Ch	14	3-1-0-0	0-1-1-0	16 weeks	1
F	Ch	25	3-4-0-0	0-1-0-0	12 weeks	2
F	Ch	26	3-1-1-0	0-1-0-0	5 weeks	0
F	Ch	28	2-2-0-0	0-0-0-0	7 weeks	0
M	Ch	18	4-0-0-0	1-0-0-0	8 weeks	1
M	Ml	17	4-2-0-0	1-1-0-0	5 weeks	0
F	Ch	15	4-0-1-0	2-1-0-0	2 weeks	0
F	Ch	21	3-2-0-0	0-1-0-0	3 weeks	2
F	Ch	21	4-0-0-0	1-0-0-0	3 weeks	3
F	Ch	20	4-0-2-0	0-1-0-0	7 weeks	2
F	Ch	15	4-2-0-0	0-1-0-0	17 weeks	0
F	Ch	15	4-0-0-0	1-0-1-0	5 weeks	3
M	Ch	17	4-4-0-0	2-1-0-0	2 weeks	0
F	Ch	23	2-2-0-0	1-1-0-0	2 weeks	0
F	Ch	19	4-2-0-0	1-1-0-0	2 weeks	0
F	Ch	18	2-2-0-0	0-0-0-0	2 weeks	0
M	Ch	17	2-2-0-0	1-0-0-0	2 weeks	2
F	Ch	33	4-2-0-0	1-1-0-0	2 weeks	3
F	Ch	17	3-1-0-0	1-0-0-0	7 weeks	0
F	Ch	13	3-0-0-0	0-0-0-0	3 weeks	0
F	I	10	2-0-0-0	0-0-0-0	2 weeks	0
F	Ch	17	4-3-0-0	0-0-0-0	6 weeks	1
M	I	12	1-4-0-0	1-0-0-0	6 weeks	0
F	Ch	21	4-2-0-0	1-1-0-0	4 weeks	0
F	Ch	22	4-1-0-0	2-1-0-0	8 weeks	0
M	Ch	25	2-2-0-0	0-1-0-0	3 weeks	0
F	Ch	16	4-0-0-0	0-0-0-0	20 weeks	1
F	Am. C	22	4-2-0-0	0-1-0-0	5 weeks	0
M	Ch	17	4-4-0-0	0-1-0-0	7 weeks	2
F	Ch	11	4-2-0-0	2-0-0-0	3 weeks	0
F	Ch	18	4-0-0-1	0-0-0-0	20 weeks	0
F	Ch	28	2-2-0-0	0-1-0-0	2 weeks	0
F	Ch	22	4-1-0-0	0-1-0-0	8 weeks	2
M	Ch	20	4-2-0-0	1-1-0-0	9 weeks	2
F	Ch	27	1-2-0-0	0-0-0-0	10 weeks	2
F	Ch	20	3-1-0-0	0-0-0-0	9 weeks	0
F	Ch	15	4-2-0-0	0-0-0-1	2 weeks	1
F	Ch	20	1-2-0-0	0-0-0-0	2 weeks	2

Sex	Race	Age in years	Severity before treatment C P S N	Result after treatment C P S N	Duration of treatment	Reaction
F	Ch	42	3-2-0-0	Interrupted	1 week	?
F	Ch	19	4-4-0-0	2-1-0-0	5 weeks	2
F	Ch	16	4-2-0-0	2-3-0-0	2 weeks	0
F	Ch	20	4-2-0-0	3-2-0-0	4 weeks	1
F	Ch	19	2-0-0-1	0-0-0-0	9 weeks	0
M	Ch	22	2-2-0-0	0-1-0-0	9 weeks	1
F	Ch	16	3-4-0-0	2-2-0-0	2 weeks	2
F	Ch	20	2-1-1-0	0-1-1-0	2 weeks	0

Abbreviations: Same as Table 1

pustules after applying Vitamin A Acid topically. All reactions observed are local and temporary. None has post inflammatory pigmentation, scars or eczematous reaction. All patients assessed (86% of total) show improvement of their acne lesions. Assuming all non-assessed cases as failures, these only constitute 14% (12/88). Some increased tolerance is observed after prolonged treatment.

Conclusion

A clinical trial of topical Vitamin A Acid, in two forms, 0.05% in alcoholic solution and 0.05% in cream base, is undertaken on 88 patients in a private dermatological practice in Singapore. Both the solution and the cream prove to be effective topical applications for the treatment of acne vulgaris in a predominantly Chinese population in a tropical environment. The topical application obviates the use of systemic Vitamin A and constitutes a valuable addition to the armamentarium of the dermatologist in the treatment of acne. It is particularly useful in those patients with a predominance of comedones. Temporary local reactions are observed but do not preclude successful treatment. There is some evidence of increased tolerance with continued use. The cream form appears to cause less severe reactions. The solution or cream should

be applied once daily initially and the frequency of application increased or reduced according to the severity of reaction observed.

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