

Treatment of Facial Plane Warts, a Comparative Study of Topical 5% KOH Solution with Topical 0.05% Tretinoin Cream.

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Abstract

Background: Plane warts represent a common self-limiting viral infection of the skin, caused by HPVs with no uniformly effective treatment modality and with a high rate of spontaneous recovery.

Aim of the study: To evaluate and compare the effectiveness and safety of topical 5% KOH solution with topical 0.05% Tretinoin cream for the treatment of plane warts.

Patients and methods: This study was conducted at Department of Dermatology and Venereology of Baghdad Teaching Hospital / Medical City from April 2015 to July 2016. Sixty six patients enrolled in the study. Patients were divided into two age and sex matched groups; patients in group (A) were treated with topical 5% KOH solution once at night for a maximum period of four weeks while, patients in group (B) were treated with topical 0.05% Tretinoin cream once at night for a maximum period of eight weeks. The patients were evaluated at 2nd, 4th and 8th weeks to assess the cure rates and side effects. Those patients who showed complete cure were asked to stop the treatment and followed up for 3 months to detect any recurrence.

Results: Thirty patients from group (A) and twenty eight patients from group (B) completed the study, while the remainders were defaulted for unknown reasons.

At the end of the 2nd week; 26.7% of patients in group (A) showed complete disappearance of their warts while, 65.7% of them showed partial response. Regarding group (B); no patients showed complete response, while 75% of the patients showed partial response.

At the end of 4th week, 70% of group (A) patients showed complete response in comparison to 28.6% of group (B) patients. Partial or non- responders in group (B) continued with the treatment and were re- assessed at the end of 8th week; (60.7%) of patients had complete response.

Recurrence of warts was recorded in 19% of group (A) versus 17.3% in group (B) patients during the 3 months period of follow up.

Conclusion: Both 5% KOH solution and 0.05% Tretinoin cream are effective topical therapies in the treatment of plane warts and both can be prescribed as home remedies. The 5% KOH solution is much cheaper with faster action but with more side effects.

Keyword: KOH solution, Tretinoin cream, Plane warts.

Introduction

Warts are benign proliferations of skin and mucosa that result from infection with human papilloma viruses (HPVs)⁽¹⁾. Plane warts occur mostly in children and young adults⁽²⁾. The face and back of the hands and the shins are the sites of predilection⁽³⁾. Usually presented as 2-4mm flat topped papules that are slightly erythematous or brown on pale skin and may be hyper-pigmented on darker skin⁽⁴⁾. The number of lesions range from 2 or 3 to many hundreds⁽³⁾.

There are many modalities for the treatment of plane warts depends on the number, site, type, size of lesions, age, cooperation of patients, pain inconvenience, duration, cost, cosmetic sequelae and risk of scarring and previous therapies used and their success and failure.^(1,3)

Retinoic acid has been used topically for the treatment of plane warts⁽¹⁾. In open therapeutic trial study conducted in Iraq, Isotretinoin gel 0.05% has been used successfully in the treatment of plane warts resulting in cure rate around 70 %⁽⁵⁾.

Potassium hydroxide (KOH) is a strong metallic base⁽⁶⁾. KOH is a powerful caustic material that has been used to remove warts⁽⁷⁾. Potassium hydroxide aqueous solution (5%) is used for treatment of male genital warts⁽⁸⁾. It is also used for treatment of molluscum contagiosum with 5%, 10% and 20% KOH solutions^(9,10).

Aim of the study

To assess the effectiveness of topical 5% KOH solution with topical 0.05% Tretinoin cream for the treatment of plane warts.

Patients and methods

This was an opened therapeutic study conducted in the Department of Dermatology and Venereology (Baghdad Teaching Hospital) from April 2015 to July 2016.

A total of 66 patients with plane warts were enrolled in the study. The ethical approval was given by the scientific committee of the Scientific Council of Dermatology and Venereology – Arab Board for Medical Specialization also informed consent was taken from each patient or their parents after full

explanation to the patient about the goal of the study.

A full history was taken from each patient regarding their sex, age, occupation, marital status, site of lesions, duration of warts, family history of plane warts, past medical history (e.g. Diabetes mellitus, organ transplantations or any other chronic diseases), drugs history especially corticosteroids and other immune suppressants or any previous treatment modality received for the warts. Physical examination was done to assess the number, location of plane warts, several photos was captured for each patient, koebnerization of lesions was also assessed.

All patients were attending department of Dermatology and Venerology included in this study while the following patients were excluded from this study, pregnant and nursing women, those receiving systemic corticosteroids or other immune suppressants, patients with history of chronic illnesses, immune suppression diseases or malignant disorders and those who received treatment for their plane warts for the last two months.

Patients were divided into two non-randomly age and sex matched groups:

Group A: Thirty –three patients were instructed to use 5% KOH solution once daily topically at night by using a wooden pick sunken in the solution and making only one touch to the warts.

Group B: Thirty –three patients were instructed to use Tretinoin 0.05% cream topically once daily at night by the same method as group A.

Follow up and evaluation

Group A (KOH 5% solution)

All patients in this group were re-examined at the end of 2nd week and the 4th week to evaluate the response to treatment depending on the clinical assessments and to record any possible side effects. Patients were considered as responders if there was complete disappearance of warts, those with partial or no decrement of lesions were considered as partial responders and non-responders, respectively⁽¹¹⁾. If complete response occurred at the end of 2nd week the treatment stopped and patients were followed up monthly for 3 months to detect any recurrence or persistent side effects. The follow up was performed by monthly visit. Those patients with partial or no response at the 2nd week were instructed to continue using the same treatments once nightly and then they were re-evaluated at the end of 4th week. At the end of 4th week if complete response occurred, the patients were followed up for 3 months as mentioned above, if no response or partial response occurred, they were considered as treatment failure.

Group B (Tretinoin 0.05% cream)

All patients in this group were re-examined at the end of 2nd week, 4th week and 8th week to evaluate the response to treatment depending on the clinical assessments and to record any possible side effects. Patients were classified as responders, partial responders and non-responders as in group A. If complete response occurred at the end of 2nd or 4th weeks, the treatment was stopped and patients were followed up for 3 months to detect any recurrence or persistent side effects. The follow up is performed by monthly visit. Partial or non-responders were instructed to continue treatment. At the end the 8th week when complete response occurred, the treatment was stopped and the patients were followed up for 3 months. Partial or non-responders were considered as treatment failure.

Statistical Analysis

A descriptive statistics like mean $\pm$ SD (standard deviation) together with analytic statistics like chi -square test had been done with ($P < 0.05$) were considered significant.

Results

Fifty eight (87.8%) patients from a total of 66 completed the study while eight patients not completed the study.

Group A:

Thirty (91%) patients completed the study out of the 33 patients. Twenty (66.7%) females and ten (33.3%) males with a female to male ratio of 2:1. Their age were 5 – 40 years (mean $\pm$ SD = 15.53 ± 8.693 years). The number of warts in each patient ranged from 5 – 70 (mean $\pm$ SD = 22.17 ± 12.951 warts). All of these warts were located on the face. The duration of the lesions ranged from 1 to 36 months (mean $\pm$ SD = 11.50 ± 9.047 months).

Group B:

Twenty eight (84%) patients completed the study out of the 33. Twenty (71.4 %) females and eight (28.6%) males with a female to male ratio of 2.5 : 1. Their age were 3 – 29 years (mean $\pm$ SD = 12.93 ± 7.722 years). The number of warts in each patient ranged from 6 – 70 (mean = 26.46 ± 17.039). All warts were located on the face. The duration of the lesions ranged from 1 – 36 months (mean $\pm$ SD = 9.46 ± 6.984 months).

Both groups were comparable with respect to different independent variables including age, sex, number and duration of lesions where all (P values) between the two groups were statistically insignificant (>0.05).

Cure rates at the end of 2nd week of treatment

Eight (26.7%) patients of group A showed complete response. While 17(56.7%) patients showed partial response; the remaining 5(16.7%) patients showed no response. On the other hand, no patient in group B showed complete response while, 21(75%) patients showed partial response and the remaining 7(25%) patients showed no response as demonstrated in table 1 and figure 1. The difference in the cure rate was statistically significant between the two groups (P value=0.013).

Cure rates at the end of 4th week of treatment

Twenty one (70%) patients of group A showed complete response while, 5(16.7%) patients showed partial response and the remaining 4(13.3%) patients showed no response. Regarding group B, 8(28.6%) patients showed complete response while, 15(53.6%) patients showed partial response and the remaining 5(17.9%) patients showed no response (Table 2). The difference in the cure rate for patients showing complete disappearance of warts was statistically significant between the two groups at the end of the 4th week (P value=0.04).

Cure rate at the end of treatment 4 weeks for Group A and 8 weeks for Group B.

Twenty one (70%) patients of group A showed complete response after 4 weeks while, 5(16.7%) patients showed partial response and the remaining 4(13.3%) patients showed no response. On the other hand, 17(60.7%) patients of group B at the end of the 8th week

showed complete response as shown in figure 2. While, 8(28.6%) patients showed partial response, the remaining 3(10.7%) patients showed no response as demonstrated in table 3. The difference in the cure rate is statistically not significant between the two groups at the end of therapy (P value=0.552).

Duration of warts had a statistically insignificant association with the cure rate (p value=0.122), i.e. lesions with long duration were responding to treatment similar to newer ones in both groups. **Side effects**

Twenty five (83.3%) patients from group A and 16(57.1%) patients from group B showed local side effects to the treating substances. These side effects includes itching, burning sensation, erythema, peeling and dyspigmentation (hypo or hyper-pigmentation).

In group A; Itching, 11(36.7%) patients, burning sensation, 7(56.7%) patients and hypo or hyper- pigmentation, 10(33.3%) patients were the commonest side effects recorded. In contrast, patients in group B where, peeling 8(28.6 %) patients was the most common local reaction reported.

Recurrence

During the 3 months period of follow up, the warts in 4(19.0%) patients out of 21 in group A who showed complete response had recurred, in comparison with 3(17.3%) patients out of 17 in group B. both groups had a comparable recurrence rates.

Table 1 Response to treatment in the two groups at the end of 2nd week of treatment.

			GROUPS		Total
			Group A KOH 5%	Group B Tretinoin 0.5%	
Response	Complete response	No. of patients	8	0	8
		%	26.7%	0%	13.8%
	Partial response	No. of patients	17	21	38
		%	56.7%	75%	65.5%
	No response	No. of patients	5	7	12
		%	16.7%	25%	20.7%
Total		No. of patients	30	28	58
		%	100%	100%	100%

Chi-square =8, P value = 0.013

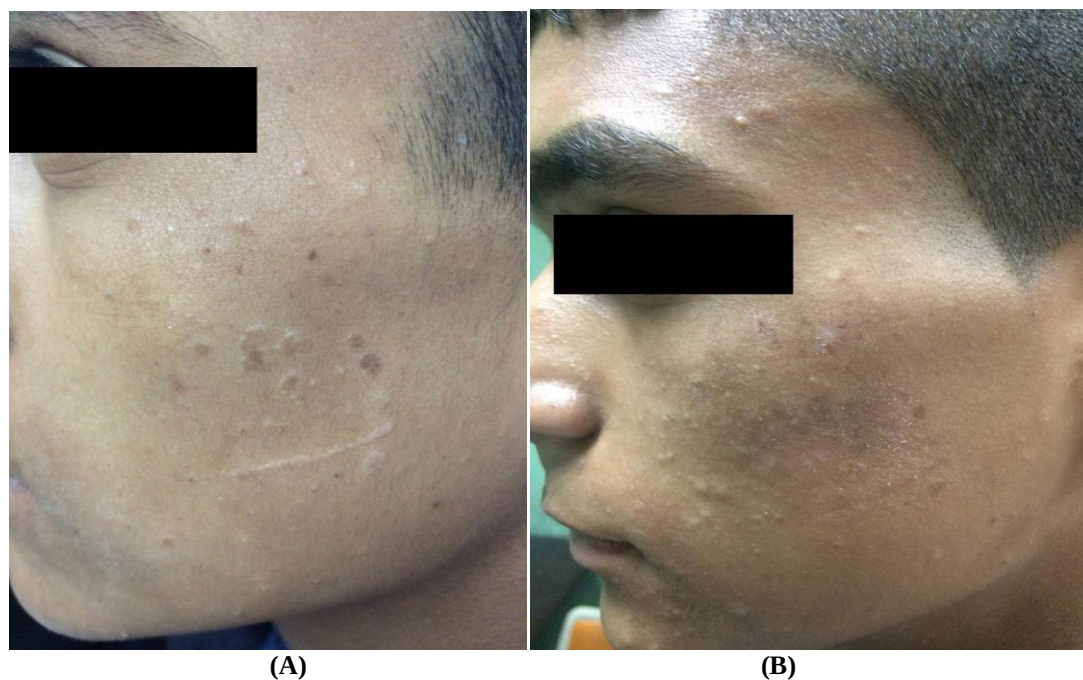


Figure1: (a) Before treatment, 13 years old boy with plane warts for 6 months duration.
(b)Two weeks after using 5% KOH solution, clearance of warts.

Table 2 : Response to the treatment in the two groups at the end of 4th week.

			GROUPS		Total
			Group A KOH 5%	Group B Tretinoin 0.5%	
Response	Complete response	No. of patients	21	8	29
		%	70%	28.6%	50%
	Partial response	No. of patients	5	15	20
		%	16.7%	53.6%	34.5%
	No response	No. of patients	4	5	9
		%	13.3%	17.9%	15.5%
Total		No. of patients	30	28	58
		%	100%	100%	100%

Chi-square=10.883, P value = 0.04

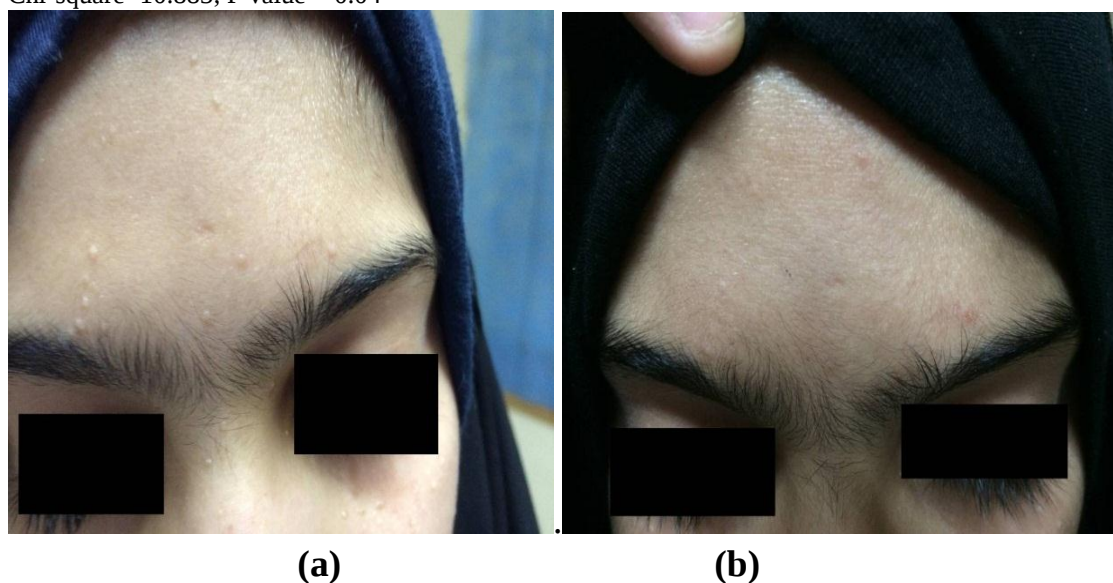


Figure 2: (a) Before treatment, 14 years old female with history of warts for one year. **(b)** Clearance of lesions after eight weeks of using 0.05% Tretinoin cream daily.

Table 3: Response to the treatment in the two groups at the end of treatment (4th week for KOH 5% group A and 8th week for Tretinoin 0.05% group B).

			GROUPS		Total
			Group A KOH 5%	Group B Tretinoin0.05%	
Response	Complete response	No. of patients	21	17	38
		%	70%	60.7%	65.5%
	Partial response	No. of patients	5	8	13
		%	16.7%	28.6%	22.4%
	No response	No. of patients	4	3	7
		%	13.3%	10.7%	12.1%
Total		No. of patients	30	28	58
		%	100%	100%	100%

chi square = 1.189 , P value =0.552

Discussion

Plane warts are benign proliferation of skin and mucosa that result from infection with human papilloma virus (HPVs). The course of papilloma virus infection varies considerably, some lesions grow rapidly, some persist without any change and some regress spontaneously over several weeks while others regress over long period of time. There are many modalities of therapy⁽¹⁻³⁾.

The present study aims to compare between the efficacy and tolerability of topical potassium hydroxide (KOH) 5% solution and topical Tretinoin 0.05% cream for treatment of plane warts.

In this study forty two (74 %) of the patients were children and adolescents, this age distribution is comparable to that's mentioned in the literatures^(1, 3, 11).

The mechanism by which KOH solution was supposed to act on plane warts is related mostly to its keratolytic effect that leads to the destruction of the infected cells and also may be attributed to its irritating effect that induce inflammatory responses and immune reactions, so causing resolution of plane warts⁽¹²⁾.

Topical Tretinoin cream also has a keratolytic effect and irritating effects that cause destruction of virally infected cells and also acts through the stimulation of local immunity^(1, 3).

The present work shows that topical 5% KOH solution has a faster action in comparison with topical 0.05% Tretinoin cream which was clearly noted from the high significant difference in the rate of complete response at the end of 2nd week of treatment. This difference in duration of response may be attributed to the more caustic effect of the KOH solution.

This cure rate of the 5% KOH solution group is comparable to that reported by other study done in Basra when the same concentrations of topical KOH solution was used for the treatment of plane warts⁽¹³⁾.

The cure rate for the 0.05% Tretinoin cream at the 8th week was comparable to an Iraqi study when Adapalene Gel was used for 8 weeks to treat plane wart were 54% achieved complete response to treatment⁽¹⁴⁾.

While treatment of plane warts with isotretinoin gel 0.05% and oral zinc sulphate for 2 months in an open therapeutic trial conducted in Iraq resulting in response rate which is around 70%⁽⁵⁾.

Other Iraqi study (2012) found that Oral isotretinoin is effective in the treatment of recalcitrant facial plane warts with a cure rate of (73.07%) and the dose was 0.5mg/kg/day⁽¹⁵⁾.

The response rate of topical zinc sulphate solution 10% 3 times daily for treatment of plane warts was comparable to 5% KOH solution in the present study, however the latter need to be used once daily, this result in better compliance to treatment⁽¹⁶⁾.

Using pulsed dye laser treatment is relatively effective for plane warts with a clearance rate 67.6%. Results were comparable to the present study, but pulsed dye laser needs many sessions, not available widely and expensive⁽¹⁷⁾.

topical therapeutic agent useful in the treatment of external genital and perianal warts (condylomata acuminata) in adults. It was used in individual cases for plane warts with cure rate (56%), and it also was expensive^(18, 19).

The results of the present study were comparable to 5- fluorouracil ointment, most patients treated with it showed hyperpigmentation, and many of them showed erosion⁽²⁰⁾.

The recurrence rates of warts among patients showing complete response in group A (19.0%) were comparable with group B (17.1%). This may reflect similarity in the keratolytic effect and the induced immune response in both groups.

Conclusions

Both 5% KOH solution and 0.05% Tretinoin cream were effective topical therapies in the treatment of plane warts and both can be prescribed as home remedies. The 5% KOH solution was much cheaper with faster action but with more side effects.

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