

The Efficacy and Safety of Superficial Chemical Peel in the Treatment of Plane Wart

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Abstract

Background and objectives: Treatment of plane warts is problematic, methods such as cryotherapy and cauterization is associated with high recurrence rate beside the risk of scar, pain and high cost. The aim of this study is to assess the effectiveness and safety of salicylic acid 30% superficial chemical peels in comparison with glycolic acid 70% solution in treatment of Plane wart. **Methods:** Sixty patients with plane wart were included in this comparative therapeutic trial. The patients have been divided randomly in two groups, group-A (30patients); have been treated by 30% salicylic acid solution while group-B (30 patients); have been treated by glycolic acid 70% solution. The full therapeutic session was six (6) and the solution was applied fortnightly. The response to the treatment was assessed every 2 weeks by counting the number of lesions. **Results:** After completion of the 6 sessions there was a significant decrease in the number of the warts in group A patients compared to group B, group-A; mean number of lesions before treatment was 43.9 ± 30.78 and after treatment was 15.6 ± 7.9 while in group-B; mean number of lesions before treatment was 38.0 ± 33.0 and after treatment it was 17.85 ± 20.32 . There was statistically a significant reduction in number of lesions in group A. **Conclusions:** Salicylic acid 30% solution can be more successful and safely used for the treatment of plane wart than glycolic acid 70% solution by the dermatologist. Salicylic acid 30% solution in comparison with glycolic acid 70% solution can induce more rapid response and fewer side effects.

Keywords: Chemical peel; Salicylic acid; Glycolic acid; Plane wart.

Introduction

Wart is one of the a common skin lesions, it caused by human papilloma virus infection (HPV)^{1,2}. It's more common in childhood and adolescence^{1,3}. Adults are less commonly to be affected by warts in comparison to younger ages^{2,3}. Plane wart (PW) as a morphological subtypes of warts mainly caused by type 3, 10, 28 and 41 of HPV³⁻⁵. Morphological characteristic of the PW is typical 2-4 mm in diameter; flat, shiny and smooth surface and mostly flesh colored. The lesions predominate on the face, hand and shins and can be disseminated by Koebnerization². Warts in general are a self-limiting disease but it's an aesthetic concern and sometimes it may stay for a few years, so that's when patients usually seek treatment⁶.

Nowadays there is no known antiviral therapy to have effect on HPV⁷. That is why mainstay of the treatment of the PW is to destruct the lesions. Many modalities had been tried for the treatment of PW like chemical preparation as salicylic acid, trichloroacetic acid, sulfur, retinoids etc. Also physical methods are successful in their destruction of PW as electro-cautery, Cryotherapy, CO2 laser, etc^{5,6}. Pain, inconvenience and risk or scarring is associated with routine treatment methods such as caustics and acids application, cryotherapy and electro cautery. These problems are more in patients with face involvement due to cosmetic and psycho-social aspects of this area. All current treatments have about 50% complete response rate and 25-50% recurrence rate^{1,3,5}.

Salicylic acid is a beta-hydroxy acid agent; it is one of the superficial peeling agents being used nowadays for the treatment of various facial disorders. It is a lipophilic compound which removes intercellular lipids that are covalently linked to the cornified envelope surrounding corni-

fied epithelioid cells. Due to its anti- hyperplastic effects on the epidermis multiple investigators have used salicylic acid as a peeling agent Also it's observed to be safe in skin of dark colored people⁸.

Glycolic acid (GA) is another known chemical substance that has keratolytic activity and it's widely used in the treatment of acne scar. Its potency depends on its concentration in topical preparations like gels, creams and solutions⁹. The aim of this study is to assess the effectiveness and safety of salicylic acid 30% superficial chemical peels in comparison with glycolic acid 70% solution in treatment of Plane wart.

Patients and methods

Open label comparative study conducted on 60 patients with plane wart, 24 males and 36 females, which were diagnosed clinically by two experienced specialist dermatologists. Patients were selected randomly among those who are visiting outpatient department of "Erbil Dermatology Teaching Center" during the period of December 2017 to January 2018. Exclusion criteria were pregnancy, breast-feeding, suffering from any systemic disease and use of any other drug in treatment of wart in past six weeks. On examination the number of plane wart was counted in each patient and a photograph was taken. After verbal consent and full explanation to each patient about the nature of disease, course and full information related to the therapy including; side effects and method of application, the patients subdivided randomly in to two groups, each of 30 patients. Group A and B are received topical SA solution 30% and GA 70% solution applications respectively. Sessions of application were 2 weeks apart and continued and controlled up 6 sessions of therapy. During

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the sessions the affected area cleansed with 96% alcohol solution and left till the area become dry. Then according to patient's group keratolytic solution applied via cotton headed stick to each lesion and left for 5 minute to work. After that in cases of SA 30% solution the area washed with tape water and dried up, while in case of GA 70% solution the treated area sprayed by neutralizing agent for GA. The ethical approval was obtained from Kurdistan board for medical specialties.

Side effects and patients' response was controlled objectively on 2 weekly bases by counting the number of lesions and taking photograph

Data were recorded on a specially designed questionnaire, and analyzed using Statistical Package for Social Sciences (SPSS) version 22. descriptive statistics presented as (mean± standard deviation). Analysis of variance (ANOVA)

Table (1): Demographic characteristics of group- A (salicylic acid 30%) peel.

Variable	No.	%
Age mean ±SD (10.6±7.2 years)		
<10 years	18	60
10-19 years	10	33.4
20-29 years	1	3.3
≥30 years	1	3.3
Total	30	100.0
Gender		
Male	13	43.3
Female	17	56.7
Total	30	100.0

The total number of lesions for the patients in this group before treatment was 1317 and after treatment was 156 (means total number of the lesions before treatment was 43.9 ± 30.78 and after treatment 15.6 ± 7.9). ANOVA analysis revealed significant decrease in lesions numbers after each treatment with SA 30% solution peels sessions (p<0.001), Table 2.

Table (2): ANOVA analysis for lesions numbers in group- A (salicylic acid 30% peels)

Sessions	No. of patients	No. of lesions	Mean ± S.D
Before treatment	30	1317	43.90 ± 30.781
After 1st session	29	961	33.14 ± 23.687
After 2 nd session	23	619	26.91 ± 17.784
After 3 rd session	20	432	21.60 ± 12.841
After 4 th session	17	314	18.47 ± 9.455
After 5 th session	15	227	15.13 ± 9.102
After 6 th session	10	156	15.60 ± 7.905
ANOVA (P-value)		<0.001	

Twenty of the thirty patients in this group had complete clearance of their lesions after completing six sessions, Table 2. Which was higher than group B.

In group B (receiving GA 70%): mean age of the patients was 13.4 ±6.5 years, 46.6% of them <10 years of age , 26.6% of them 10-19 years of age, 16.7% of them 20-29

was used to demonstrate the difference between different mean. P value ≤ 0.05 regarded statistically significant. Statistical analysis of the study was done by the community medicine specialist.

Results

Sixty patients with PW have been included in this study, 30 patients were treated with salicylic acid 30% peels and 30 patients treated with glycolic acid 70% peels.

In group A (receiving SA 30%): mean age of the patients was 10.6±7.2 years, 60% of them were <10 years old, 33.4% of them were 10-19 years old, 3.3% of them were 20-29 years old and 3.3% of them were ≥30 years old. Females were 17(56.7%) and males were 13 (43.3%), Table 1.

years of age and 10% of them ≥30 years of age. Females were 19(63.3%) and males were 11(36.7%), Table 3.

Table (3): Demographic characteristics of group-B (glycolic acid 70%) peels.

Variable	No.	%
Age mean (13.4 ± 6.5years)		
<10 years	14	46.6
10-19 years	8	26.7
20-29 years	5	16.7
≥30 years	3	10
Total	30	100.0
Gender		
Male	11	36.7
Female	19	63.3
Total	30	100.0

The total numbers of lesions for the patients in this group before treatment was 1141 and after treatment was 357 (mean total number of the lesions before treatment was 38.0 ± 33.0 and after treatment 17.85 ± 20.3). ANOVA analysis revealed non-significant decrease in lesions numbers after each treatment with GA peels sessions (p=0. 15) which is more than 0.05, Table 4.

Table (4): Analysis for lesion numbers in group B (glycolic

Sessions	No. of patients	No. of lesions	Mean ± S.D
Before treatment	30	1141	38.03 ± 33.028
After 1 st session	27	850	31.48 ± 30.381
After 2 nd session	26	667	25.65 ± 28.771
After 3 rd session	21	572	27.24 ± 27.234
After 4 th session	20	451	22.55 ± 23.701
After 5 th session	20	421	21.05 ± 23.130
After 6 th session	20	357	17.85 ± 20.327
ANOVA (P-value)			0.15

Ten of thirty patients in this group had complete clearance of their lesions after completing six sessions which was less than group A. Table 4

A significant difference in the mean of lesions number was observed between patients treated with 30% salicylic acid peels and those treated with 70% glycolic acid peels. Side effect observed in patient of group A: right after the procedure there is mild erythema, dryness and burning sensation which is transient not necessitate stopping the treatment, one patient had hyperpigmentation, Table 5.

Side effect observed in patients of group B: majority of patients developed sever erythema and burning sensation after procedure. Two cases developed irritant contact dermatitis after 2 weeks of therapy, which has been controlled by Bepanthen cream and one patient developed hypopigmentation, Table 5.

Table (5): Side effects of groups - A and B.

Side effects	Study groups	
	Group- A	Group- B
None	22 (62.9%)	6 (12.2%)
Erythema	4 (11.4%)	15 (30.6%)
Burning	6 (17.1%)	19 (38.8%)
Dryness	2 (5.7%)	8 (16.3%)
Dyspigmentation	1 (2.9%)	1 (2%)
Chi square (P-value)	0.002	

Side effect observed in patients of group B: majority of patients developed sever erythema and burning sensation after procedure. Two cases developed irritant contact dermatitis after 2 weeks of therapy, which has been controlled by Bepanthen cream and one patient developed hypopigmentation, Table 5.

There is significant difference in side effect between the two groups ($p < 0.05$)



Figure (1): Upper row: patient treated by SA 30% solution, A: Before treatment, B: after 4 weeks. Lower row: patient treated by GA 70% solution. A: Before treatment, B: after 4 weeks.

Discussion

Plane wart is the dermatosis which is the result of HPV infection and it could persist for years. In some cases self-healing is noticed without any treatment. The spontaneous clearance is reliable on the immune status of the subject and sensitization of immune system to the virus. Aesthetic concern makes patients to seek treatment which involves only destruction of the lesions^{1,4}.

Many methods of lesion destruction have been used for PW treatment. In this study we aimed to assess efficacy of both SA 30% solution and GA 70% solution in the treatment of PW and compare their results. These solutions are used as chemical peeling agents. SA is widely used for many cosmetic purposes due to its important properties, it has desmolytic rather than keratolytic action.⁸ GA is alpha-hydroxy acids act by exfoliation of corneocytes of stratum corneum⁹.

Warts are common skin lesion especially in childhood and adolescence^{2,3}. In our study the mean age of group-A (SA 30% solution) patients was 10.6 ± 7.2 years, with 60% of them were less than 10 years and females more than males, while mean age of group-B (GA70%) patients was 13.4 ± 6.5 years, with 46% of them less than 10 years and females more than males. In both group the predominant age is less than 10 years and female more than male patients. Our finding regarding gender was comparable with Al-Hilo, et al study in Iraq which resulted in predominance of female gender¹². while the finding regarding the age was comparable with Murad A, et al study in Iraq which result in predominance of plane wart among younger age patients (less than 10 years)¹³.

There are many studies conducted in which they used preparations which our study relies on. In a study both GA and SA combined in mixture (GA 15% and SA 2%) as gel but in lower concentrations than that of our study, with excellent responses⁹. Oral isotretinoin also been used for PW for quite long duration which might have systemic side effects^{10,11}. Our study found a significant reduction of wart lesions number after treatment in group A (SA 30%), ($p < 0.001$) while reduction rate of wart lesion number after treatment was non-significant in group B (GA70%), ($p = 0.15$). The complete clearance of lesions were observed in twenty of thirty patients of group A (SA 30%) which is higher than group B (GA 70%) in which complete clearance of lesions occur in ten of thirty patients.

The side effect are less in group A (SA 30%) than group B (GA 70%) $p = 0.002$. Twenty patients free of side effect in group A comparing to six patients in group B. Patient satisfaction was higher in group A and this is may be due to less side effect and better improvement so that searching for an efficacious topical modality without major side effects is one of the strong points of using SA even in high concentrations with limited and minor side effects like erythema, temporary, burning sensation, which been controlled by simple bald cream compared to those treated with GA.

The response to the treatment with SA 30% solution observed to be more effective than the group B patients who received GA 70% solution. High concentrations of SA make the treatment session to be office based procedure and must be done by professionals only. These concentrations should never be used at home as it can cause severe damage if applied by patients themselves, To the best of our knowledge, there is no reported studies available assessing the use of salicylic chemical peel in the treatment of plane wart..

Conclusions

Using SA 30% solution as peeling agent fortnightly for six sessions in for the treatment of PW is quite successful and when compared with GA 70% solution it showed to be more effective and has more rapid response with fewer side effects.

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