



TOPICAL USE OF 10% POTASSIUM HYDROXIDE VERSUS 20% TRICHLOROACETIC ACID IN THE MANAGEMENT OF PLANE WARTS OF UPPER AND LOWER LIMBS: A PROSPECTIVE STUDY

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ABSTRACT

Introduction: Verruca, commonly known as viral warts are cutaneous manifestation of the human papillomavirus (HPV) has worldwide occurrence, affecting people of all ages and all races. Warts are most common on the hands and feet, but any skin site may be affected. Warts are well defined, raised lesions with smooth or rough surface causing pain or tenderness with significant morbidity for the patients. Human papillomavirus infection may be clinical, subclinical or latent. Plane Warts occur mostly in children and young adults. Both Potassium Hydroxide and Trichloroacetic Acid are potent keratolytic agents commonly used in the management of Warts in general practice. **Materials and Methods:** This study was conducted over a period of 12 months from October 2020 to September 2021. 120 cases of cutaneous plane warts of the upper and lower limbs presenting to the Department of Dermatology at a Rural Hospital in South India were included in the study. 60 patients in Group A were treated with 10% KOH and 60 patients in Group B were treated with 20%TCA once a week application for 12 weeks. After completion of the treatment, clinical resolution of the warts was analyzed. Participants were categorized as complete responders, partial responders and non- responders. **Observations and Results:** Out of total 120 patients, 20 were excluded as they developed some form of side effect or lost follow up. 61 patients had an excellent response (34 in Group A and 27 in Group B), 21 patients had a good response (13 in Group A and 08 in Group B) and, 13 patients had a satisfactory response (03 in Group A and 10 in Group B) and 05 patients had poor subjective response (0 in Group A and 05 in Group B). **Conclusion:** In our study, 10% KOH was found to be better than 20% TCA in the management of common warts on the upper and lower limbs. The number of cases showing complete response in the KOH group was 8% better than TCA.

KEYWORDS: Plane Warts; Trichloroacetic Acid; Potassium Hydroxide; Human papillomavirus.

INTRODUCTION

Verruca, commonly known as viral warts are cutaneous manifestation of the human papillomavirus (HPV) infection has worldwide occurrence, affecting people of all ages and all races.^[1]

Human papillomavirus infection may be clinical, subclinical or latent. There are 150 types of papillomavirus which is classified based on the viral DNA. Plane Warts occur mostly in children and young adults. The causative agent for this is usually the human papillomavirus type 3 or 10 and occasionally type 28. Treatment for Plane Warts include Imiquimod, 15% Glycolic Acid^[2], 0.05% topical Zinc Sulphate solution^[3],

Trichloroacetic Acid (TCA), BCG immunotherapy, Electrodesiccation, Cryotherapy^[4,5,6], topical Salicylic Acid, Isoretinoin gel and 50% Citric Acid.

TCA acts as a topical destructive agent. The lesion undergoes hydrolysis of cellular protein which leads to cell death. It can be used to treat anal, genital and cervical warts in a concentration of 70-80%. The response rates from the result will be similar to cryotherapy.^[7,8] 10-30% TCA is helpful in treating common warts and superficial peeling.^[9] 50-90% TCA solutions are used for moderate to deep peeling. A few local effects like burning, hyper pigmentation, formation of scar may occur.

Potassium hydroxide (KOH) solution is a well-known keratolytic agent with many dermatological uses.^[10] KOH helps in the destruction of virus infected cells and thus resolves the warts. It can be used in children safely and is less painful, less irritating and less scar forming. Side effects like erythema, itching, burns and dyspigmentation may be rarely seen.

The aim of the study is to compare clinically the change in appearance of the lesion after application of 10% KOH and 20% TCA in two different groups and to compare the outcomes of the effects of the respective solutions.

MATERIALS AND METHODS

Source of data

Cases of cutaneous plane warts of the upper and lower limbs presenting to the Department of Dermatology at a Rural Hospital in South India.

Duration of study: 12 months from October 2020 to September 2021.

Sample size: Total 120 patients, 60 patients in each Group. Group A was treated with 10% KOH and Group B was treated with 20% TCA.

Inclusion criteria

- Age more than 10 years of both sexes.

Exclusion criteria

- Pregnancy.
- Hypersensitivity to TCA and KOH.
- Patients who are currently undergoing any other treatment for warts.

Method of collection of data

- Informed consent was taken from the entire patients Group.
- Clinical diagnosis was made based on morphology of the lesions.
- Photographs of lesions were taken with consent before starting the procedure.
- Patients were grouped into two groups of sixty each. A systematic random procedure was done to select the patients for the application of KOH and TCA.
- Group A were given topical 10% KOH and Group B were given topical 20% TCA application once a week on OPD basis for 12 weeks. The concentrations of TCA and KOH were mixed weight-by-volume to assess the accurate concentration.
- For both the Groups, a solution dipped cotton tipped Toothpick was applied on to the wart [perpendicular to the skin surface]. Extra solution was wiped out. Patient was observed for 20 minutes in order to see any side effects.
- The treatment was continued over the full period or till all the lesions cleared. All adverse events were recorded during every visit.

- Both the Groups were examined at the end of 4th week, 8th week and 12th week in order to evaluate the response of medication.

OBSERVATIONS AND RESULTS

After completion of the treatment, clinical resolution of the warts was analyzed by objective and subjective responses. Objective response was the overall percentage of resolution of warts from the initial visit (beginning stage) and the participants were categorized as complete responders, partial responders and non- responders based on the following definitions:

Complete responders: Patients who had 100% reduction rate of all the warts both in size and number.

Partial responders: Patients whose warts size and number got reduced.

- **Moderate responders:** 50% reduction in number and size of warts

- **Mild responders:** < 50% reduction in number and size of the warts

Non-responders: Patients who had no reduction in the number and size of the warts.

OBSERVATIONS AND RESULTS

A total of 120 patients were enrolled in this study. Figure 1 shows the complete profile of the trial. Sixty patients each were included in each Group. 3 patients from Group A developed Irritant contact dermatitis and 2 from the same Group developed erythema. 5 patients from Group A and 3 patients from Group B were lost to follow up. 5 patients from Group A and 7 patients from Group B developed dyspigmentation. Total of 100 patients were available for the final assessment.

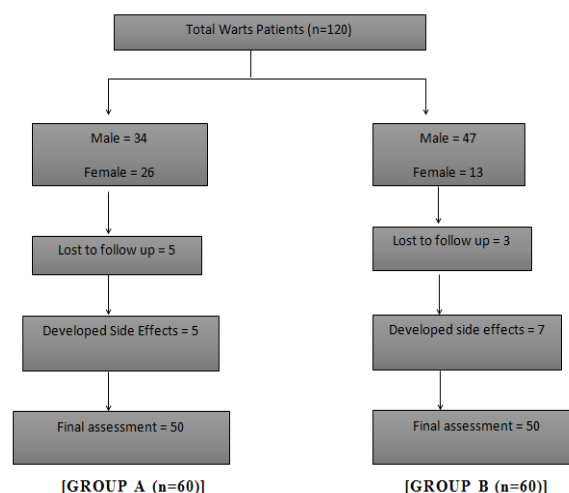


Figure 1: Assessment Chart.

Out of total 100 patients, 61 patients had an excellent response, (34 in Group A and 27 in Group B), 21 patients had a good response (13 in Group A and 08 in Group B) and, 13 patients had a satisfactory response (03 in Group A and 10 in Group B) and 05 patients had poor subjective response (0 in Group A and 05 in Group B). Table 1 shows the difference in the response in both Groups.

Table 1: Distribution of Subjects According To Response.

S.NO	RESPONDERS	GROUP A	GROUP B
1	Complete	34	27
2	Moderate	13	08
3	Mild	03	10
4	Non responders	00	05
5	Total	50	50

DISCUSSION

Plane warts present as skin-colored or light brownish, flat-topped papules on the face, beard area or on the back of the hands and legs and primarily affect children and young adults. Their evolution is variable and long lasting, although two thirds of cases emerge in a period of two years due to immunological mechanisms.

Plane warts can greatly affect a patient's quality of life due to their occurrence mainly over the face and their persistence and/or recurrence can cause frustration. Moderate-to-extreme discomfort was reported in 52 percent of patients, and social or leisure activities are affected in 38 percent of patients.^[11]

10% KOH as a topical irritant and destructive agent is found to be equally effective in the treatment of plane warts compared to 20% TCA. 10% KOH has the advantage of faster onset of action and tendency of completely clearing the warts with few side effects.^[12] In plane warts of size 1-5 mm, less than 10 in number and duration of less than one year it has been proved that response with 10% KOH is good. More frequent application and future follow up of the moderate responders might deliver better results / complete response as seen in other studies.

On the other hand, 20% TCA has slower onset of action and clearance for common warts/scars takes more time. It is possible that a higher concentration of the agent may be necessary to achieve an early response (80% and above including a 100% sample).^[13]

Both KOH and TCA are less expensive, easy to apply and well suited for treatment of plane warts by the patient / parents at home itself. No special storing facilities are required. Hyperpigmentation seen with 20% TCA may make it less promising in treatment of plane warts over the face in young females.

In our study, there were a few side effects seen in both arms like erythema, itching, burning and dyspigmentation. These were found to be more with 20% TCA compared to 10% KOH which makes 20% TCA cosmetically less acceptable. There was no immunosuppression or grave complications noted in the study. There was no recurrence of warts observed on follow up after 3 months.

Available literature reveals that only one study has been done comparing the efficacy of 5% KOH and 10% KOH in plane warts.^[10] A study has been done evaluating

efficacy of 50% citric acid solution in plane warts. This study stated that 50% TCA is highly effective in curing warts in the long term with about 65% of good response.

In accordance with Pezeshkpoor et al., 8 improvement in treatment responses were classified into four groups: (i) no change (no changes in the number of warts); (ii) mild (clearing of 75% of warts).

Another study found that TCA was more effective than cryotherapy in the treatment of plantar warts, with significant statistical difference between the complete clearance of lesions among the two groups at four interventions. Pain and ulceration were significantly higher among those in the cryotherapy group than among those in the TCA group.^[14] We have used the same concept for our study.

In our study, final assessment shows that in Group A 34 patients had complete response, 13 patients had moderate response, 03 patients had mild and none had no response. In Group B, 27 patients showed complete response, 08 patients had moderate response, 10 patients had mild response and 05 patients had no response. It was clearly found that the percentage of patients showing complete clearance (100% response) was greater in Group A than in Group B.

CONCLUSION

10% KOH is found to be better than 20% TCA in the management of common warts of the limbs. The number of cases showing complete response in the KOH group was 8% better than TCA. Although both the agents are easy to procure and store, KOH can be used at a lower concentration than TCA which makes it simpler and more cost effective.

CONFLICT OF INTEREST

Nil.

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