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A COMPARATIVE STUDY OF 35%TCA AND 50%TCA IN WARTS-A RANDOMIZED UNCONTROLLED TRIAL

Cosmetology

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ABSTRACT

Background: Warts are benign growth of skin and mucosa caused by the human papillomavirus (HPV). Among the destructive modalities, trichloroacetic acid (TCA) is one.

Aims and Objectives: To compare the safety and efficacy of topical 35% TCA and 50% TCA in the treatment of warts.

Materials and Methods: One hundred and twenty consecutive patients with warts were randomly assigned into two groups of 60 patients each; GROUP A received topical 50% TCA and GR0UP B received topical 35% TCA as a once weekly application for 8 weeks.

Results: Statistically significant difference (P = 0.002) was found between the therapeutic response to 50% TCA and 35%TCA at the end of the study (12weeks).

Conclusion: 50% TCA is effective in the treatment of warts compared to 35% TCA.

KEYWORDS

TCA, warts, HPV

INTRODUCTION

Warts are caused by infection of keratinocytes by HPV. The incidence increases from childhood to reach a peak in adolescence and early adulthood, then declines rapidly through the twenties and more gradually thereafter.[1] There are many modalities of treatment for the treatment of warts that includes topical salicylic acid, glycolic acid, 5-fluorouracil, isotretinoin gel, topical zinc sulfate solution, 50% citric acid, trichloroacetic acid (TCA), bacillus Calmette-Guérin immunotherapy curettage/electrodessication, and cryotherapy [2],[3],[4],[5],[6]. TCA is a topical destructive agent and causes hydrolysis of cellular proteins leading to cell death. It is effective in treating common, cervical, genital, and anal warts in the concentrations of 30-80% and has response rates comparable to cryotherapy. [7],[8] Low concentrations (30-50%) are used for the treatment of common warts and superficial peeling.[9] The advantage is the complete lack of systemic toxicity. However, a few local effects such as pain, burning, hyperpigmentation, and rarely scar formation may occur.

MATERIALS AND METHODS

A single center, randomized, uncontrolled, open comparative therapeutic trial was conducted at the Department of Dermatology, Venereology and Leprosy at a tertiary care centre. A total of one hundred and twenty consecutive patients, 60 each with multiple cutaneous warts ranging from 3 to 50 in number anywhere on the skin except mucosa and genitalia of age more than 4 years of both sexes attending the outpatient department were included in the study. Pregnant and nursing women, patients with hypersensitivity to TCA, patients having any other treatment within the last 1 month, with comorbid conditions such as diabetes or immunosuppression and those unable to return for follow-up were excluded from the study.

Location, size (measured using Schirmers tape), and number of warts were recorded on inclusion. In case of multiple warts, the average size of all the warts was calculated for assessing response.

Group A received 50% TCA and Group B received 35% TCA topical application once weekly by the physician. In both groups, a cotton-tipped toothpick dipped in the solution was applied till the frosting occurs to the wart under the vaseline cover of surrounding skin. The therapy was continued until the completion of 8 weeks .Both the groups were examined at the end of 4 weeks, 8 weeks and 12 weeks to evaluate the response to treatment and for any side effects. Clinical resolution of the warts was determined by the number and size of warts.

Based on overall percentage of resolution of warts, patients were classified as complete responders that is complete disappearance (100%) of all the warts both in size and number, and partial responders who were in turn classified as moderate responders with more than 50% (51-99.9%) reduction in number and size of warts, and mild responders: <50% (1-50%) with reduction in number and size of the warts (average reading taken for both size and number) or nonresponders with no reduction (0%) in the number or size of warts.

RESULTS

Of a total of 120 patients enrolled fiffty six (46.6%) patients were males and Sixty four (53.4%) were females. Age of the patients ranged from 5years to 55 years, duration of warts from 2 months to 5 years, number of warts varied from 3 to 50, and size ranged between 1 and 10 mm. Fifty sixt(46.66%) patients had warts over the face (30 patients each in group A and 26 in B), 28patients (23.33%%) on the dorsum of hands (16patients in group A and 12in group B), 36patients (30%%) over the arms ,legs and foot (20 in group A and 16 in B). In group A (50%TCA), 26(43.33%) were males and 34(56.66%) were females. The mean age of patients was 28.86 years with standard deviation (SD) ±14.13. The mean duration of warts was 10 months. An average number and size of lesions were 9.18 and 3.19 mm respectively. In group B (35% TCA), 34(56.66%) were males and 26 (43.33%) were females. The mean age of patients was 29.06 years with SD ± 10.37. The mean duration of warts was 9 months. An average number of lesions and the size were 10.04 and 3.39 mm respectively. Both the groups were comparable with respect to different independent variables including sex, age, number, size, and duration of lesions ($P > 0.05$).

Study results at 12 weeks showed that In Group A (50% TCA), 30 patients (50%) had complete response, that is 8 patients (13.33%) showed complete response, 18patients had moderate respone, 8 patients (13.33%) had mild response, and 4 patients (6.66%) had no response .In group B(35% TCA) 18 patients (30%) had no response, 8 patients (13.33%) had mild response, 26 patients (43.33%) had moderate and 8 patients (13.33%) had complete response. Statistically significant difference was found between the therapeutic response to 35% TCA and 50%TCA ($P < 0.005$) [Table 1].

Table 1: Distribution of subjects according to response

Response	Group A(50%)TCA	Group B(35%TCA)	Total
Non responders	4	18	22
Mild responders	8	8	16
Moderate	18	26	44
Complete responders	30	8	38

X^2=20.464
Df=6
p-0.002

Side effects

Erythema was seen in 20 patients (33.33%%) in group A and 12 (20%) in group B during the procedure for 10-15 min. 32patients (53.33%) in GroupA and 14(23.33%) in Group B experienced burning or itching sensation for a transient period of 10 minutes. Hyperpigmentation was seen in 13 patients (21.66%) of patients in group A and 2(3.33%) of patients in group B. [Table2]

Table 2: Distribution of patients according to side effects

Side effects	GROUP A(50%TCA)	GROUP B(35%TCA)	TOTAL
Erythema	20	12	32
Burning/itching	32	14	46
Hyperpigmentation	13	2	17

On follow-up of the patients with complete response after 3 months, no recurrence of warts was noticed.



Figure.1 TCA35%
a) Pre treatment **b) Partial response (8 weeks)**



c) Complete response (12 weeks)



Pre treatment **Partial response (12 weeks)**
Figure.2 TCA 50%

DISCUSSION

A multitude of therapies is available for the treatment of common warts with varying degrees of success ranging from the age-old destructive treatment to cryotherapy and the newly emerging therapies such as pulsed dye laser, intralesional immunotherapy, and autoinoculation therapy. There are insufficient data available to show the efficacy and strength of recommendation for topical destructive or caustic agents which are safer, inexpensive, and easy to use.

It was noticed that the average percentage reduction in wart size and number at the end of 12 weeks was better with 50% TCA which was statistically significant ($P < 0.005$). 50% had complete response and 6.6% had no response whereas with 35% TCA , only 13.3% had complete response and 30% had no response. In a single-blinded clinical trial done by Pezeshkpoor *et al*., [10] 62 patients with common warts were randomly divided into two groups and were applied 80% TCA (Group A) and 35% TCA (Group B) once per week until complete clearance of the lesions or for a maximum duration of 6 weeks. Improvement was greater with a higher concentration of TCA solution (80% TCA) with all patients who had mild to complete response (46.6%). This implies that higher concentration of TCA has better resonse. In our study, we had 50% complete respone with 50% TCA itself with less side effects. It was found that warts over the scalp showed a tendency of complete clearance compared to other sites such as hands, arms, and feet as shown in [Figure1] and [Figure2] However, 50% TCA showed postinflammatory dyspigmentation which makes it slightly unfavorable, but it is transient.

Results showed that 35% TCA had a lower clearance rate seen at the end of 6 weeks (12%) which is almost similar to this study (13.33%) at the end of 12 weeks. It can be interpreted that more time and more concentration is probably needed for TCA to show complete response. Review of literature shows that TCA in higher concentration (60-80%) has equal cure rates in genital warts compared to cryotherapy. The British Association of Dermatologists guidelines suggests 50-80% TCA weekly application for 8 weeks for treating hand warts , but the side effects are higher as the concentration goes up.[11] As there are no case-control or cohort studies of TCA available, a few more studies are needed in future to compare the efficacy of different concentrations of TCA in warts. Comparing the safety profile of the two agents in our study, itching, burning and hyperpigmentation was seen higher in 50% TCA group, but it is transient.

CONCLUSION

50% TCA is more effective than 35% TCA. It is possible that a higher concentration of the agent may be needed to achieve a complete and early response but will be limited by the greater chance of side effects, but in our study the side sffects are only transient. A few more studies are needed in future to compare the efficacy of different concentration of TCA in warts.

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