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EFFICACY OF DAILY PODOPHYLLIN TOXIN APPLICATION FOR CUTANEOUS WARTS: A PROSPECTIVE CLINICAL STUDY OF 62 PATIENTS

Dermatology

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ABSTRACT

Cutaneous warts are benign epidermal proliferations caused by human papillomavirus (HPV). Persistent lesions often require treatment due to cosmetic concerns or discomfort. Podophyllin toxin, a cytotoxic compound derived from Podophyllum species, has been used topically for wart treatment. This study evaluates the efficacy and safety of once-daily podophyllin application for 3 weeks in patients with cutaneous warts

KEYWORDS

Podophyllin toxin , Cutaneous wart, HPV(Human papilloma virus)

INTRODUCTION

Cutaneous warts are viral infections caused primarily by human papillomavirus (HPV). The lesions result from viral-induced hyperplasia of keratinocytes, most commonly affecting the hands, feet, and knees. Although many warts resolve spontaneously within two years, persistent lesions may cause pain, bleeding, cosmetic disfigurement, and social stigma. Management of cutaneous warts involves multiple modalities, including keratolytics, cryotherapy, electrosurgery, laser ablation, immunotherapy, and topical cytotoxic agents.

Podophyllin toxin, containing the active compound podophyllotoxin, inhibits microtubule assembly, arresting mitosis and causing necrosis of infected keratinocytes. Despite widespread use in anogenital warts, data on its efficacy in cutaneous warts are limited. This study aims to evaluate the clinical efficacy, safety, and statistical significance of daily podophyllin application for three weeks in patients with cutaneous warts.

MATERIALS AND METHODS

This prospective, open-label study enrolled 62 patients with cutaneous warts. Inclusion criteria included age 12–60 years, 1–10 warts of duration >1 month, and no prior treatment in the past 4 weeks. Exclusion criteria included mucosal or genital warts, pregnancy, lactation, immunocompromised status, hypersensitivity to podophyllin, or ulcerated lesions.

Podophyllin toxin 10% in compound tincture of benzoin was applied once daily to each wart using a cotton swab, left for approximately 6 hours, and washed off thereafter. Treatment continued for 3 weeks. Patients were evaluated weekly and again at week 6 post-treatment.

Outcome measures included complete clearance, partial response (>50% reduction), recurrence at 3 months, and adverse effects. Wart counts were recorded before and after therapy, and a paired t-test was used to determine statistical significance using the formula:

$$t = \frac{\bar{d}}{s_d/\sqrt{n}}$$

where d = mean difference between pre- and post-treatment wart counts, s_d = standard deviation of differences, and n = number of patients (62). A p-value < 0.05 was considered significant.

RESULTS

In the 62 patients enrolled, 58 completed the study. Mean age was 27.8 ± 8.6 years; 62% were male. Warts were most commonly located on the hands (48%) and feet (29%). The mean wart count decreased from 4.82 ± 1.74 before treatment to 1.35 ± 1.12 after 3 weeks (mean reduction 3.47 ± 0.97). Paired t-test analysis revealed a t-value of 12.64 and p < 0.001, indicating a statistically significant improvement.

Table 1: Wart Count And Statistical Analysis

Parameter	Mean ± SD (Before)	Mean ± SD (After 3 Weeks)	Mean Difference	t-value	p-value
Number of Warts per Patient	4.82 ± 1.74	1.35 ± 1.12	3.47 ± 0.97	12.64	<0.001

Complete clearance occurred in 43 patients (74.1%), partial response in 9 (15.5%), and no response in 6 (10.3%). Recurrence at 3 months occurred in 4 patients (9.3%). Mild erythema or burning sensation was observed in 17% of patients, all resolving spontaneously. No systemic adverse events were reported.

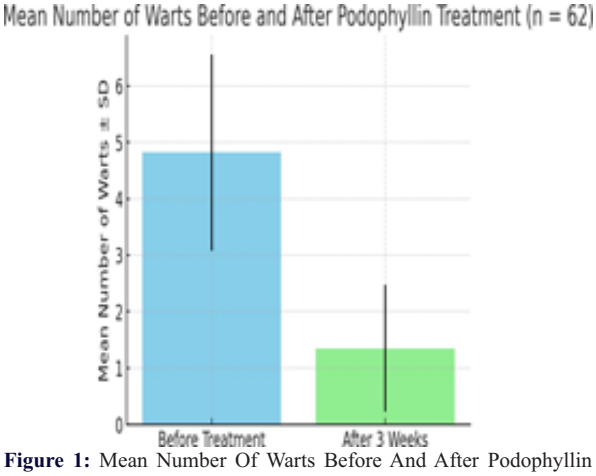

Figure 1: Mean Number Of Warts Before And After Podophyllin Treatment (n=62)

DISCUSSION

The present study demonstrates that daily application of 10% podophyllin toxin for 3 weeks is highly effective for cutaneous warts, achieving a complete clearance rate of 74.1% and statistically significant reduction in wart count ($p < 0.001$). Shorter-duration warts (<6 months) responded better, consistent with previous reports that early lesions are more treatment-responsive.

Podophyllin's efficacy is attributed to podophyllotoxin, which inhibits microtubule formation, arrests mitosis, and induces necrosis in HPV-infected keratinocytes. Compared to other treatments such as cryotherapy or salicylic acid, podophyllin is inexpensive, simple to apply, and suitable for outpatient management. Recurrence was low (9.3%), and adverse effects were mild and transient.

Limitations include the lack of a control group, relatively short follow-up, small sample size, and reliance on self-application for treatment adherence.

CONCLUSION

Daily topical application of 10% podophyllin toxin for 3 weeks is a safe, effective, and statistically validated treatment for cutaneous warts. It offers a cost-effective alternative in outpatient or resource-limited settings, with high clearance rates and minimal adverse effects.

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