Original article

Outcome of 20% topical zinc oxide ointment in the treatment of cutaneous warts of hands and feet

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ABSTRACT

Background: Viral warts (verrucae) are benign proliferations of skin and mucosa that result from different types of human papilloma viruses (HPVs). Warts may occur at any age, but they are more common in children and adolescents. Various treatment modalities are available for warts, but none is uniformly effective. Ultimate treatment often includes destructive measures, which are usually painful and carry risk of scarring. This study aims to find out the treatment outcome of 20% topical zinc oxide treatment of cutaneous viral warts of hands and feet, as zinc oxide is cheap and easy to apply.

Patients and methods: This is a prospective descriptive analytical study conducted at the Outpatient Department (OPD) of Dermatology, Sir Ganga Ram Hospital, Lahore from December 2013 to June 2014. Two hundred and fifty-five (255) patients were enrolled and instructed to apply topical 20% Zinc Oxide Ointment twice daily. Patients were followed fortnightly for a period of 3 months or till complete cure, whichever occurred first.

Results: Out of total 255 patients, 173 (67.8%) were female, and 82 (32.2%) were male. The mean age of patients was 17.55±4.48 years. Complete cure was observed in 127 (49.8%) patients at the end of 3 months of treatment, 41 (16.1%) showed a moderate response while 35 (13.7%) patients didn't show any response.

Conclusion: Topical Zinc Oxide (20%) Ointment may be considered an effective and safe initial treatment for cutaneous warts of hands and feet.

Keywords:
Cutaneous warts, Outcome, Zinc oxide, Ointment

INTRODUCTION

Viral warts (verrucae) are benign proliferations of skin and mucous membranes that result from different types of human papilloma viruses (HPVs).[1] At least 189 human papilloma viruses genotypes have been described.[2] Warts may occur at any age but they are more common in children and adolescents.[3] Some studies report that up to 10% of young population has warts.[4] They may progress spontaneously and increase in number and size according to the immune status of the patient.[3] Warts spread via person to person contact or indirectly by fomites.[5] Incubation period is variable, ranging from few weeks to more than one year.[1-3] Warts may be painful depending on their location and can affect patient's quality of life by causing adverse psychological effects or negative social perception.[2,6] Treatment of warts is aimed at relieving the patient's physical and psychological discomfort and preventing the spread of infection by autoinoculation.[7] Various modalities are used to treat warts, such as electrocoagulation, liquid nitrogen, hot nitric acid, flexible collodion, intralesional bleomycin, fluorouracil, intralesional interferon, photodynamic therapy and many others but none are uniformly effective and treatment often includes destructive measures, which carry a risk of scarring and are painful.[3,8,9]

Zinc is an important trace element which is present in all organs, tissues and fluids of the body. The skin and its appendages are rich in zinc. Historically, for more than 3000 years, zinc salts, such as zinc oxide or calamine, are applied topically to facilitate wound healing.[10] Zinc is used in the treatment of many dermatological disorders in which it acts either as antiviral, immunomodulator, antioxidant or cytotoxic.[1] Zinc acts as immunomodulating agent in the treatment of warts and modulates DNA-RNA related enzymes.[11] Topical zinc may initiate a cascade of immunologic events. It acts by inducing inflammation and activating T-lymphocytes to release interferons thereby leading to action of macrophages against wart-derived keratinocytes.[9]

Topical zinc oxide application is considered cheap, easy to apply and is painless and safe. Due to the differences in skin types and papilloma virus types, there might be differences in response to topical zinc

Competing interest: The authors have declared no competing interests exist
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Table 1. Frequency for outcome of 20% topical zinc oxide ointment in the treatment of cutaneous warts of hands and feet

Response to treatment	Frequency	Percentage
No response	35	13.7
Mild response	10	3.9
Moderate response	41	16.1
Significant response	32	12.5
Excellent response	10	3.9
Complete cure	127	49.8

oxide in different populations and in Pakistan, no concrete data is available in this regard. This study was planned to find out the outcome of zinc oxide (20%) ointment in the treatment of viral warts of hands and feet.

PATIENTS AND METHODS

This prospective study was conducted at the Outpatients Department of Dermatology, Fatima Jinnah Medical University/Sir Ganga Ram Hospital Lahore from December 2013 to June 2014. Patients of either sex, 12-29 years of age, having common warts on the dorsal aspect of hands and feet, were included in the study. Patients who had taken treatment for warts during the last 3 months, immunocompromised patients, pregnancy, lactation, diabetes mellitus, critically ill patients, having warts for more than 1-year duration and known hypersensitivity to zinc oxide in topical form, were excluded from the study. Total of 255 patients, fulfilling the inclusion criteria, were enrolled. Informed consent was taken, and demographic data were recorded on a predesigned proforma. The number of lesions ranged from 1-15. All patients were instructed to apply 20% zinc oxide ointment twice daily on the warts, wait for the medication to dry and then rub the wart with an emery stone before the next application. Patients were followed up fortnightly for a period of 3 months or till complete cure, whichever came first. Size and number of warts were recorded at first visit and fortnightly and photographs were taken at the start and at each visit to see the progress. Outcome was assessed in terms of no response to complete cure on the basis of percentage decrease in number of warts from baseline and was graded as follows:[12] Grade 0= no response Grade 1= mild response (1-25% reduction in wart numbers) Grade 2= moderate response (26-50% reduction in wart numbers) Grade 3= significant response (51-75% reduction in wart numbers) Grade 4= excellent response (76-99% reduction in wart numbers) Grade 5= complete cure (100% reduction in wart numbers).

Percentage decrease from baseline was calculated as: Total decrease in number of warts from baseline at 3 Months x 100/Total number of warts at baseline. Data was entered into SPSS version 21. Numerical variable i.e. age was presented by mean±SD and range. Categorical variables i.e. gender, outcome (no, mild, moderate, significant, excellent response and complete cure) were presented as frequency and percentage.

RESULTS

Out of total of 255 patients, 173 (67.8%) were females, and 82 (32.2%) males; male to female ratio being 1:2.1. Age of the patients ranged from 12 to 29 years with a mean of 17.55±4.48 years. Before starting treatment, the number of lesions ranged from a minimum of 1 to 15 with a mean of 10.06±3.86 lesions. After 3 months of treatment, the number of lesions ranged from a minimum of 0 to a maximum of 15 with a mean reduction to 3.14±3.77 lesions. Total 127(49.8%) patients had complete cure at the end of 3 months of treatment, followed by 41 (16.1%) who showed moderate response while 35 (13.7%) patients did not show any response as summarized in Table 1. Patients with mild to moderate response were advised to prolong treatment till cure and patients with no response were switched to another treatment modality. None of the patients reported serious side effects necessitating stoppage of the treatment.

DISCUSSION

This study aimed at evaluating the effectiveness of topical zinc oxide in local population where the response may have varied due to differences in skin types and papilloma virus types. Male to female ratio was 1:2.1. Almost similar findings were seen in the study conducted by Rezai MS et al in 2019.[13] The mean age of patients in this study was 17.55±4.48 years which closely correlates with of Antaya and group who presented that warts are most common between 14-20 years of age.[14] In this study, 49.8% patients had complete cure at the end of 3 months of treatment which is well within the figures quoted in previous reports.[1,9] Mun and coworker documented 50% cure rate in patients with cutaneous warts after 2 months of treatment with oral zinc sulphate.[8] Similar results were achieved later by Hassan and colleagues, where 60.97% patients achieved complete cure at the end of 6 weeks of treatment with oral zinc sulphate.[15] In another study, effectiveness of topical zinc oxide was compared with salicylic acid-lactic acid combination in the treatment of warts on 44 patients. Out of 22 patients in the zinc oxide group, six patients (27.27%) dropped out. Out of sixteen patients who completed the study, eight (50%)

achieved complete cure (grade 5), one (6.25%) improved up to 75% (grade 3), four (25%) improved up to 50% (grade 2) while three (18.75%) showed no improvement (grade 0).[9] Results of current study demonstrate the efficacy of topical zinc oxide (20%) ointment in local population.

CONCLUSION

Topical Zinc Oxide (20%) ointment is an effective treatment of cutaneous warts of hands and feet with complete cure in at least 50% patients at the end of 3 months of treatment.

REFERENCES

1. Sharquie KE, Khorsheed AA, Al-Nuaimy AA. Topical zinc sulphate solution for treatment of viral warts. Saudi Med J. 2007;28(9):1418-21.
2. Jaisinghani A, Dey VK, Suresh MS, Saxena A. Bacillus Calmette–Guerin Immunotherapy for Recurrent Multiple Warts: An Open-Label Uncontrolled Study. Indian J Dermatol. 2019; 64(2):164.
3. Stefani M, Bottino G, Fontenelle E, Azulay DR. [Efficacy comparison between cimetidine and zinc sulphate in the treatment of multiple and recalcitrant warts]. An Bras Dermatol. 2009; 84(1): 23-9.
4. Das BB, Anton K, Soares N, Riojas S, Mcdermott J, Knox L, et al. Cimetidine: A Safe Treatment Option for Cutaneous Warts in Pediatric Heart Transplant Recipients. Med Sci (Basel). 2018; 6(2). pii: E30.
5. Witchey DJ, Witchey NB, Roth-Kauffman MM, Kauffman MK. Plantar Warts: Epidemiology, Pathophysiology, and Clinical Management. J Am Osteopath Assoc. 2018; 118(2): 92-105.
6. Abeck D, Tetsch L, Lüftl M, Biedermann T. Extragenital cutaneous warts - clinical presentation, diagnosis and treatment. J Dtsch Dermatol Ges. 2019 Jun;17(6):613-634.
7. Chandra S, Sil A, Datta A, Pal S, Das NK. A double-blind, randomized controlled trial to compare the effectiveness and safety of purified protein derivative of tuberculin antigen with Mycobacterium w vaccine in the treatment of multiple viral warts. Indian J Dermatol Venerol Leprol. 2019; 85(4): 355-66.
8. Mun JH, Kim SH, Jung DS, Ko HC, Kim BS, Kwon KS, *et al*. Oral zinc sulfate treatment for viral warts: an open-label study. J Dermatol. 2011;38(6):541-5.
9. Khattar JA, Musharrafieh UM, Tamim H, Hamadeh GN. Topical zinc oxide vs. salicylic acid-lactic acid combination in the treatment of warts. Int J Dermatol. 2007;46(4):427-30.
10. Glutsch V, Hamm H, Goebeler M. Zinc and skin: an update. J Dtsch Dermatol Ges. 2019; 17(6): 589-596.
11. Thappa DM, Chiramel MJ. Evolving role of immunotherapy in the treatment of refractory warts. Indian Dermatol Online J. 2016; 7(5): 364-70.
12. Al-Hilo MM, Al-Saedy SJ, Jawad WA. Treatment of Plane Warts with Topical Adapaline Gel 0.1%: An Open Therapeutic Trial. JAMS. 2013; 2(1): 87-98.
13. Rezai MS, Ghasempouri H, Marzidareh OA, Cherati JY, Rokni GR. Intralesional injection of the measles-mumps-rubella vaccine into resistant palmoplantar warts: A randomized controlled trial. Iran J Med Sci. 2019; 44(1): 10–7.
14. Antaya RJ, del Carmen M, Alonso F, Sukumar N, Yong F, Dvoretzky. An open label study of an occlusive heat patch in the treatmenty of warts. J Drugs Dermatol. 2019;18(4):368-373.
15. Hassan I, Bhat T, Altaf H, Sameem F, Masood Q. Role of oral zinc sulphate in warts-a placebo controlled, single-blinded study. Our Dermatol Online. 2013; 4(1): 24-7.