ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 11 | November - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ROLE OF ORAL ZINC ACETATE IN THE TREATMENT OF GENITAL WARTS IN MALE PATIENTS

Medical Science

Dr. E. Balasubramanian M.D. DVL Assistant Professor, Institute Of Dermatology Venereology Leprosy, Madras Medical College/ RGGGH, Chennai

Dr. S. Kalaivani M.D.D.V Director And Professor Of DVL, Institute Of Dermatology Venereology Leprosy, Madras Medical College/RGGGH, Chennai

ABSTRACT

INTRODUCTION: Genital wart is a sexually transmitted disease caused by Human papillomavirus. Zinc is a micronutrient that plays an important role in the normal development of immune cells and has specific antiviral activity.
AIM: To study the effectiveness of oral zinc acetate in the treatment of genital warts in male patients and the correlation between the serum zinc level and genital warts.
MATERIALS AND METHODS: Fifty male patients clinically diagnosed with genital warts were included in the study. Pretreatment and post-treatment serum zinc levels were checked. Patients were treated with oral zinc acetate containing 50 mg of elemental zinc thrice daily for 12 weeks. Patients were followed at the end of the 4th week, 8th week and 12th week and clinical assessment was performed at each visit. Follow up was performed for 6 months to check for recurrence.
RESULTS: Good response to treatment (>95% clearance of warts) was recorded in 48% of cases, partial response (50-95% clearance of warts) in 42% cases. Recurrence after six months of stopping therapy was seen in 30%.
CONCLUSION: Oral zinc is an effective modality of treatment for genital warts especially in patients with low pretreatment zinc levels.

KEYWORDS

Oral zinc, Genital wart, treatment.

INTRODUCTION

Warts are virally transmitted diseases caused by Human papillomavirus (HPV). There are more than 120 distinct subtypes of human papillomavirus and among them, subtypes 6 and 11 are responsible for 90 per cent of the cases of genital warts [(1)]. Among the various treatment modalities available, immunotherapy is gaining importance nowadays since it aims at modulating the immune system and facilitating the production of cytokines.

Among the various oral immune modifying agents like cimetidine, ranitidine, levamisole, the effectiveness of oral zinc in the treatment of warts has been studied widely by various physicians with varying outcomes [(2)].

AIM:

To study the effectiveness of oral zinc acetate in the treatment of genital warts in male patients and the correlation between the serum zinc level and genital warts.

MATERIALS AND METHODS:

This is a Randomized control trial study conducted at the Institute of Dermatology Venereology and Leprosy, Rajiv Gandhi Government General Hospital, Chennai, from March 2019 to February 2021 after approval from the Institutional Ethical Committee.

A study population of 50 males in the age group of 18-50 years with a clinical diagnosis of genital warts, who gave consent to participate in the trial and for follow up were recruited in the study. Patients who had taken any other treatment modality for genital warts in the past three months were excluded from the study. After proper consent from the patients and assuring confidentiality detailed clinical history including marital history and sexual history were taken. Systemic examination, local examination of the genitalia, examination of skin and mucosa were performed. Laboratory investigations performed were Blood Venereal Disease Research Laboratory (VDRL) and serum Treponema pallidum Hemagglutination test (TPHA), Enzyme-Linked Immunosorbent Assay (ELISA) for HIV - 1 & 2 antibodies after pretest counseling and serum zinc level using nitro – PAPS method. Zinc level measurement included baseline value at the start of the study and follow up serum levels at the end of the 12 weeks after the treatment.

Treatment protocol:

Patients were treated with oral zinc acetate containing 50 mg of elemental zinc, 3 times a day for 12 weeks. Patients were followed at 4 weekly intervals at the end of the 4th week, 8th week and 12th week after starting the treatment. At the end of 12 weeks, patients were assessed for their response to treatment. Patients were followed up again for 6 months post the last day of treatment for recurrence. Those patients who did not respond to oral zinc therapy at the end of 12 weeks were given other modalities of treatment.

Treatment Response Assessment:

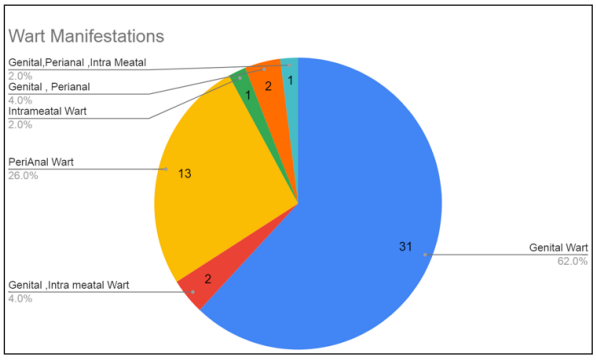
- Good response- Complete clearance of lesions
- Partial response- more than 50% clearance
- No response - less than 50% clearance

RESULTS

Among the 50 men who participated in the study, the majority belonged to the age group 18-45 years (90%). Among them, 25 were married (50%) and 25 were unmarried (50%). Concerning sexual orientation 29 (58%) were heterosexual, 14(28%) were homosexual and 7 (14%) were bisexual. History of multiple sexual contacts was present in 15 men (30%).

History of genital warts in sexual partners was present in 22% (n=11) and 60% (n=30) were unaware of their partner's disease status. The mean duration of symptoms was 6.6 months (ranging from 1 month to 24 months). The most common manifestation was Genital wart/ penile wart (62%) followed by perianal wart (26%) and intrameatal wart (2%). However, there were combinations of warts like genital and perianal warts (4%), genital and intrameatal warts (4%), Genital, Perianal and Intrameatal Warts (2%) **(Figure: 1).** Apart from Anogenital Warts, 18% (n=9) had other sexually transmitted infections (STIs).

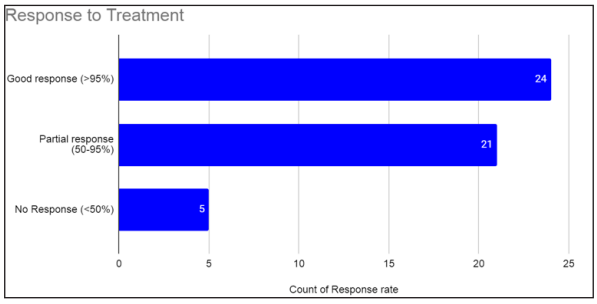
Among the other associated STIs, Syphilis was the most common (n=5, 10%) followed by Intertrigo groin (n=3, 6%) and candidal balanoposthitis (n=1, 2%).



None were positive for Retroviral disease. VDRL reactive and TPHA positive reports were seen in 10% (n=5). The pretreatment zinc level

accounted for 118.832 ± 61.872 (Mean ± SD). The post-treatment zinc level was 176.354± 61.515(Mean ± SD).

Good response to treatment was recorded in 24 patients (48%), Partial response was recorded in 21 patients (42%) and no response was seen in 5 patients (10%) **(Figure: 2).** The mean duration for clearance of warts was 3.6 months. The most common adverse effect noted was nausea (36%, n=18) followed by mild epigastric pain (16%, n=8) while others reported no adverse effects. Recurrence after 6 months after completion of therapy was seen in 12 patients (24%) and the remaining 38 patients (76%) showed no recurrence.



DISCUSSION:

In India, the overall prevalence of Anogenital warts is estimated to be 1.07% [3] and it is the second most common STI among males in the southern part of India [4]. Current most widely used treatment modalities are largely centered upon removal of the warty growth rather than elimination of the underlying viral infection[1]. Different modalities of treatment include topical therapy with podophyllin, imiquimod and 5- Fluorouracil. Destructive and surgical therapy with Trichloro aceticacid, cryotherapy, electrosurgery & carbon dioxide lasers. Recently Immunotherapy for warts is gaining popularity as it is based on the activation of the immune system to tackle the virus. Among the various systemic Immunotherapy options, oral zinc is widely used in the treatment of many dermatological conditions [5].

In our study with oral zinc, Good response (>95% clearance) which was seen in 48% of patients in our study is comparable with similar results by Taylor et al [6] who also showed 48% of patients showing complete resolution of warts but with 8 weeks of zinc therapy. Similarly, Al- Gurairi et al [7] showed complete resolution of cutaneous warts in 60.9% of patients after one month of treatment with oral zinc but in a higher dosage of up to 600mg/day (10mg/kg/day). However, our results are not consistent with the observations of Lopez Gracia et al [8] who studied the response of oral zinc in the treatment of cutaneous warts, showing only 16% of patients with complete resolution.

Among the 50 patients, 13 (26%) had pretreatment zinc levels below normal (<52 µg/dL) with a mean pretreatment zinc level of 43.907 µg/dL and post-treatment zinc level of 107.223 µg/dL, with a mean increase of 63.316 µg/dL post-treatment. All the patients with low zinc level pretreatment showed a good response(>95% clearance) to treatment, with an increase in post-treatment zinc levels. This observation revealed that the response to treatment was directly related to the increment in serum zinc levels post-treatment administration. A similar observation was made by Mun et al [2].

No serious adverse effects were reported in this study. The adverse effects with Zinc acetate in this study, nausea(36%), mild epigastric pain (16%) is comparable to that reported by Mun et al[2] (nausea- 16%, epigastric pain- 3%) and by Al- Gurairi et al [7] (nausea - 100%, epigastric pain- 13%) with both studies using Zinc sulphate in a dose of 10mg/kg/day in three divided doses up to 600mg/day. Genital wart recurrence within 6 months of post-treatment follow up was 24% in this study which was more among those who didn't show a good response to treatment (>95% clearance). Worldwide reported recurrence rate for genital warts, in general, includes 44.3% by Giuliano et al [9] and 56.24 % by Khopkar et al [3], comparable to this study where there is a comparatively lesser recurrence rate with zinc therapy.

The main mechanism of immune dysfunction that is caused by zinc deficiency is the decrease in gene expression of interleukin-2 (IL-2) and IL-2 receptor an (IL-2Ra) due to the decreased toll-like receptor activation of nuclear factor-kB (NF-kB) in T helper cells. Decreased gene expression and generation of tumour necrosis factor-α (TNF-α), IL-1ß, IL-8, IFN, reduced T-cell numbers, decreased ratio of type 1 to 2 T-helper cells with reduced production of T-helper type 1 cytokines such as interferon-gamma are other mechanisms. Zinc is also an antioxidant and has anti-inflammatory qualities [10]. Therefore, zinc becomes a therapeutic option by modulating the immune system in patients with viral warts.

CONCLUSION :

Our results suggest that oral zinc is a good therapeutic option in the treatment of genital warts, especially in patients with low zinc levels. It is safe, effective with few adverse effects in a dose of 150mg/day when given in three divided doses.

REFERENCES:

1. Yanofsky VR, Patel RV, Goldenberg G. Genital warts: a comprehensive review. J Clin Aesthetic Dermatol. 2012 Jun;5(6):25–36.
2. Mun J-H, Kim S-H, Jung D-S, Ko H-C, Kim B-S, Kwon K-S, et al. Oral zinc sulfate treatment for viral warts: an open-label study. J Dermatol. 2011 Jun;38(6):541–5.
3. Khopkar US, Rajagopalan M, Chauhan AR, Kothari-Talwar S, Singhal PK, Yee K, et al. Prevalence and Burden Related to Genital Warts in India. Viral Immunol. 2018 Jun 1;31(5):346–51.
4. Trends Of Sexually Transmitted Infections Among Patients Attending Std O.P. In A Tertiary Care Center In South India: A Retrospective Study, Dr. J.Mukesh Mithran, Dr. S.Kalaivani IJSR - International Journal of Scientific Research(IJSR),Volume-10 | Issue- 9| September-2021
5. El-Khalawany. Immunotherapy of viral warts: myth and reality [Internet]. [cited 2021 Oct 3]. Available from: https://www.ejdv.eg.net/article.asp?issn=1110-6530; year=2015; volume=35;issue=1;spage=1;epage=13;aulast=El-Khalawany
6. The use of oral zinc for the treatment of genital warts | SmartSexResource [Internet]. [cited 2021 Oct 2]. Available from: https://smartsexresource.com/health-providers/blog/201405/use-oral-zinc-treatment-genital-warts
7. Al-Gurairi FT, Al-Waiz M, Sharquie KE. Oral zinc sulphate in the treatment of recalcitrant viral warts: a randomized placebo-controlled clinical trial. Br J Dermatol. 2002 Mar;146(3):423–31.
8. López-García DR, Gómez-Flores M, Arce-Mendoza AY, de la Fuente-García A, Ocampo-Candiani J. Oral zinc sulfate for unresponsive cutaneous viral warts: too good to be true? A double-blind, randomized, placebo-controlled trial. Clin Exp Dermatol. 2009 Dec;34(8):e984-985.
9. Giuliano AR, Sirak B, Abrahamsen M, Silva RJC, Baggio ML, Galan L, et al. Genital Wart Recurrence Among Men Residing in Brazil, Mexico, and the United States. J Infect Dis. 2019 Feb 15;219(5):703–10.
10. Prasad AS. Zinc in Human Health: Effect of Zinc on Immune Cells. Mol Med. 2008;14(5–6):353–7.