

Purified Protein Derivative (PPD) Injection – A novel treatment option in Verruca Vulgaris – Prospective Study in Tata Main Hospital, Jamshedpur.

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How to citation this article: Kiran Kumre, Binod Kumar, Tulika Anand, “Purified Protein Derivative (PPD) Injection – A novel treatment option in Verruca Vulgaris – Prospective Study in Tata Main Hospital, Jamshedpur”, IJMACR- February - 2024, Volume – 7, Issue - 1, P. No. 01 – 04.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Warts is an infection of the skin caused by Human Papilloma Virus which manifests in the form of verrucous lesions over the skin surface. Local recurrence and incomplete removal of the infection is the demerits associated with the nowadays available tissue destructive therapies. Newer treatment modality i.e. intralesional immunotherapy with purified protein derivative provides the advantage of curing the viral infection at treatment site and also at the remote site, besides offering lifelong immunity. We in Dermatology Department conducted a study, whose objective was to evaluate the effect of purified protein derivative (PPD) of Mycobacterium tuberculosis as immunotherapy in difficult to treat warts.

Keywords: Verruca, Intralesional, Immunotherapy, Pro Inflammatory.

Introduction

Warts are viral infection caused by human papilloma viruses (HPVs) which infect keratinocytes of the epidermis. The most commonly employed treatment modality is local tissue destruction of the warts which may be achieved by chemical or electric cautery, cryotherapy or carbon dioxide laser. Side effects associated with all these modalities include potential to cause dyspigmentation and/or scarring and can be associated with recurrences.

They are also of little use in palmo-plantar warts, facial warts and multiple warts. [1] Development of cell-mediated immunity (CMI) leads to spontaneous regression in warts. An immune response is essential for clearance of warts. [1],[2],[3] Immunotherapy is a novel treatment option to treat warts which is based on the principle of enhancement of cell-mediated immunity. It has been carried out using various antigens like Candida,

Trichophytin and mumps. [4] , [5] , [6] The objective of this study was to evaluate the effect of purified protein derivative (PPD) of *Mycobacterium tuberculosis* as immunotherapy in difficult-to-treat warts.

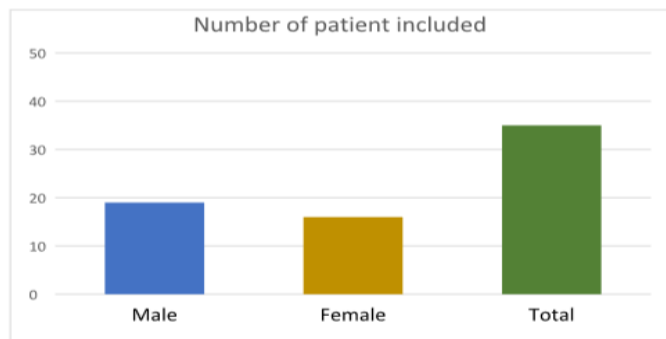
Material and Methods

It was a prospective study conducted from Jan 23-June 23 in which 35 patients with difficult- to-treat warts such as palmoplantar warts, periungual warts, facial warts, verucca vulgaris and verruca plana were enrolled and Injection PPD was given intralesionally once in 2 weeks and similar 5-6 sittings of injections were given which lead to resolution of lesions. Male and Female of age group between 15-50 years formed the inclusion criteria while children, elderly patients and those who declined to participate, pregnant women, patients on immunosuppressive drugs were excluded.

After informed consent from the patient (or parent if the patient was a minor), 2.5 TU of PPD was injected into each lesion. In case of multiple lesions, any 3 lesions were selected and PPD was injected in those by dividing according to size of the lesions (bigger -2 TU, small- 1 TU).A total of six sessions were planned at an interval of 2 weeks.

Total	35
Female	19
Total	16

Table 1



Graph 1

In case of clearance before 6 sittings, 1 extra sitting was done over the cleared site. Clinical response was assessed and photographs were taken during each visit. After 6 months, all the patients were called telephonically to enquire about any recurrence and patients who returned for follow up were examined. The response to treatment was evaluated by observing all the warts on injected and non-injected sites. Patients were prescribed zinc tablets post injection which acts as immune modulator and lesions observed in each sitting. Patients were also counselled regarding dos and donts.

Pictures of Patients

Before and After



Before



After



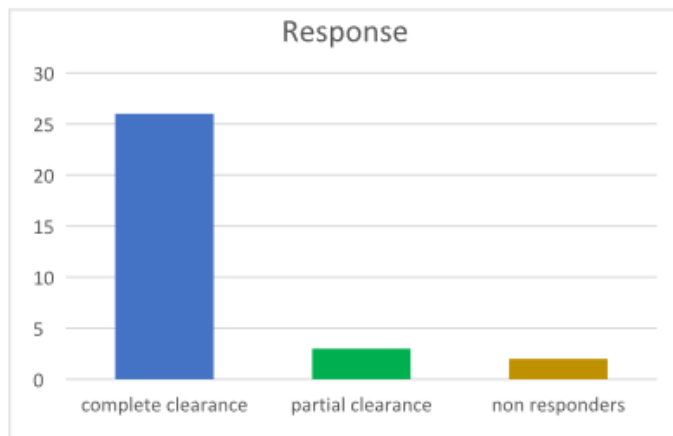
Before and After



Results and Observations

Response	No of Patients
Complete Clearance	26
Partial Clearance	3
Non Responders	2

Table 2



Graph 2

In our study, Verruca over different body sites showed complete clearance (13), Periungual and plantar warts showed good response (12), Genital warts and verruca plana showed partial response including some non responders (6).

Discussion

Cell mediated immunity has a crucial role in regression of the viral load in HPV infection. Significant number of CD4+ activated lymphocytes are seen in spontaneously regressing wart in epidermis as well as in dermis as compared to the non-regressing lesions. [7] Developing countries like India has high load of tuberculosis

infection. That's why, we used PPD to induce positive CMI against HPV. Exact mechanism by which PPD clears the wart is not very well established but different studies predict that there is release of various pro-inflammatory chemicals when PPD is injected into the wart tissue that cause activation of APC (antigen presenting cell), which recognize and then process the HPV at the local site. This results in the development of robust adaptive immune reaction against mycobacterium tuberculosis as well as against HPV infection [8][9][10]. It is mediated by Th1 cytokines such as interleukin-4, 5, 8, IFN- γ and TNF. Increase in IL-12 levels is also seen as a process in boosting the cell mediated immunity which helps in the mechanism of action. In the present study, side effects were minimum as pain was observed by only 5 patients and swelling or erythema in 3 patients.

Conclusion

We can conclude by this study that immune stimulation through PPD is worth in all types of warts. It can be used as an important first line of treatment in difficult to treat sites genital warts and periungual warts. Improvement in symptoms like pain in short period of time and high cure rate benefits the patients and the complications associated with other destructive modalities can also be avoided. In addition, it also provides increased chances of attaining a lifelong immune response for whole life.

Declaration of patient and consent

The authors certify that they have obtained all appropriate patient consent form. In the form, the patients have given their consent for the images and other clinical information to be reported in the journal. They understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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