

Role of Intralesional Measles Mumps Rubella Vaccine in Cutaneous Warts: A Case Control Study

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ABSTRACT

Background: Destructive and immunotherapeutic methods are the commonly employed treatment modalities for warts. Intralesional immunotherapy using antigens and vaccines has been shown to be effective in management of cutaneous warts. We here by evaluated the efficacy of Measles Mumps Rubella (MMR) vaccine injection in the treatment of cutaneous warts.

Aim: The aim of study was to study the safety and efficacy of intralesional Measles Mumps Rubella (MMR) vaccine in treatment of warts.

Materials and Methods: This study was conducted from Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar, from January 2017 to December 2017. The study included 50 clinically diagnosed cases of cutaneous warts with single or multiple lesions. They were randomly assigned into two groups (25 in each group). First group included twenty five patients received intralesional MMR vaccine, and second group included twenty five patients received intralesional saline as a control group. Both treatments given into single lesion or into the largest wart in case of multiple lesions at 3 weeks intervals for a maximum of three treatments. Follow up was made every 2 months for 6 months to detect any recurrence.

Results: A highly significant difference in therapeutic responses was found in multiple cutaneous warts to MMR vaccine and saline control group. At the end of third visit (9 weeks) about 72% patients showed complete response, 16% patients showed partial response in MMR treated patients and no response was seen in 12% of patients. In 12% patients recurrence was observed in MMR vaccine treated group.

Conclusion: Intralesional immunotherapy by MMR vaccine in treatment of common warts was effective with good cure rates and safety profile.

Keywords: MMR vaccine, warts

INTRODUCTION

Wart or verruca is a mucocutaneous disease, is caused by human papilloma virus (HPV) which result in proliferation of infected skin or mucosal cells. Papilloma viruses are ubiquitous, epitheliotropic nonenveloped small double-stranded DNA viruses. More than 100 strains of HPV are identified and some of them have contributed in the pathophysiology of warts. [1,2]

Although warts may resolve spontaneously in 65%-75% of the patients within 2 years [3, 4], many patients seek treatment because of unsightly nature of warts and fear of malignancy.

The treatment of warts includes two main options: the first is the conventional destructive and aggressive method, which includes treatment with cautery,

cryotherapy, electrodissection, laser ablation and surgical excision, and the second is immunotherapy which can be applied either topically or through intralesional injection or through systemic administration. [5]

The basis of immunotherapy is the manipulation of the immune system to achieve a human papilloma virus-targeted immune reaction. Various immunotherapeutic approaches have been attempted using topical contact sensitizers, oral immunomodulators, interferons and various viral, fungal and bacterial antigens which are administered intralesionally or intradermally. These interventions are thought to influence the release of different cytokines such as interleukin-2, interleukin-4, interleukin-5, interleukin-8, interferon and tumor necrosis factor- α that stimulate a strong immune response against human papilloma virus. Antigen injections are also

thought to be associated with the proliferation of peripheral blood mononuclear cells that promote Th1 cytokine responses and further activate cytotoxic T-cells and natural killer cells to eradicate human papillomavirus-infected cells. [6]

In some previous studies, it has been shown that intralesional mumps-measles-rubella vaccine results in regression of warts via immunomodulation. [7, 8] This method can be used because of vaccine availability and safety. We evaluated the efficacy of MMR vaccine injection in treatment of cutaneous warts.

MATERIALS AND METHODS

This case control clinical trial was conducted after obtaining the Institutional Ethics Committee approved at Chalmeda Ananda Rao Institute of Medical Sciences from January 2017 to December 2017. Our study included 50 patients with warts who were candidates for treatment. Inclusion criteria were patients having single or multiple common warts, age more than 10 years, with no concurrent systemic or topical treatment of warts within past 2 months. Patients with fever or signs of any inflammation or infection, children less than 12 years, pregnant and lactating female, immunocompromised patients, patients having history of asthma, allergic skin disorders were excluded from the study. The baseline characteristics of patients have been presented below (table 1).

Table 1: Demographic characteristics of the patients

Group	Age (Years)			Sex	
	10-20	20-30	30-40	Male	Female
1	6	13	6	14	11
2	4	14	7	16	9
Total	10	27	13	30	20
Percentage(%)	20%	54%	26%	60%	40%

Patients were clearly explained the nature of study and written informed consent was taken for the participation in the study. Demographic data of each participant were collected. Detailed cutaneous examination was done in bright light, and appropriate digital photographs were taken. Patients were divided randomly into two groups (1,2 respectively). Group 1 had received 0.3 ml of intralesional MMR vaccine in the base of targeted wart, Group 2 had received 0.5 ml of intralesional normal saline (0.9%) in the target wart at 3 weeks interval for a maximum of three treatments.

MMR vaccine (Tresivac) is a freeze dried preparation of live attenuated strains of measles mumps and rubella viruses (0.5ml per dose). The vaccine was reconstituted

and a volume 0.3 ml was injected with an insulin syringe into the wart or into the largest wart in patients with multiple warts.

Patients were assessed at the beginning of the study and during each treatment session to assess the reduction in the size and number of warts. They were followed up every 2 months for a period of 6 months to detect any recurrence.

RESULTS

At the end of the study photographic assessment was done to compare the degree of response. The response evaluated as noresponse, partial response and complete response. Complete clearance was seen in 72% patients and partial clearance was seen in 16% patients receiving MMR vaccine. No response is seen in 12% of patients. The recurrence rate during the 6 month follow up period is 12%. Pain during injection was noted in 60% patients without any other adverse effects in the treated patients. The mean duration taken to show the complete clearance of the lesions is 9 weeks.



Figure : A Before Treatment After Treatment



Figure : B Before Treatment After Treatment



Figure : C Before Treatment After Treatment

Figure 1: A, B, C Photographs showing pre and post treatment of warts treated with MMR vaccine showing complete clearance of warts respectively at the end of 9 weeks.

Results in this study showed that the response of warts to the MMR vaccine treated group gave good result compared with normal saline group, with high rates of complete clearance (72%).

Table 2 : Response to treatment, with comparison of both groups in percentages.

	Group 1 (25 Patients)	Group 2 (25 Patients)	Clearance percentage(%)
Complete clearance	18	–	72%
Partial clearance	4	–	16%
No response	3	25	–
recurrence	3	–	12%

DISCUSSION

Local excision and tissue destruction are the most commonly used methods for the treatment of warts. However these treatment modalities have complications of scarring or hyperpigmentation and are not practical for multiple warts, and facial warts due to side effects. Most of these current therapeutic options have clearing of warts but also have higher rates of recurrence (20-30%), this may be due to non recognition of a viral antigen by the cellular immune system. Immunotherapy objective is to achieve an HPV-targeted immune reaction. Hence, to stimulate cell mediated immunity various antigens are used of fungal, bacterial and mycobacterial origin. In recent years immunotherapy has been considered as a novel therapeutic option and some studies have performed on mycobacterial, candida antigens and also on viral antigens present in MMR vaccine. The

effectiveness of intralesional injection of MMR vaccine and antigens is by Non-specific inflammatory response to the antigen. ^[9]

In our study, the age of patients were nearly of similar age in both the groups with lesions commonly on hands and feet. Complete clearance was seen in 18 (72%) patients of MMR vaccine treated group, partial clearance was seen in 4 (16%) patients and no response is seen in 3 (12%) patients treated with MMR vaccine treated group and group treated with normal saline. The clearance percentage was high among patients with multiple cutaneous warts. The average number of injections required for complete clearance are three and the average duration for complete clearance of lesions is 12-14 weeks. In 3 (12%) patients recurrence was seen during their 6months follow up period. The treatment was accepted and had pain in only few patients without any other adverse effects.

The results of our study are almost similar to the previous studies in Nofal and Nofals study, it was reported that the therapeutic response in MMR group (80%) had been significantly higher than in the normal saline group, ^[10] With Mw vaccine, Singh et al. and Meena et al. observed complete response in 54.5% and 83% patients respectively along with response in distant warts along with response in distant warts in 86.3% and 70% patients respectively. ^[11, 12] Horn et al. found no difference in response among the individual antigens (Candida, 59%; mumps, 51%; Trichophyton, 62%; P = 0.48). ^[13]

CONCLUSION

From our study we infer that MMR vaccines have a promising response for patients with multiple cutaneous warts with sustained effect, cost effective and good safety profile.

CONFLICT OF INTEREST :

The authors declared no conflict of interest.

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