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Original Research Paper

Dermatology

A STUDY TO EVALUATE THE ROLE OF AUTO-IMPLANTATION THERAPY IN CUTANEOUS VIRAL WARTS.

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ABSTRACT

Introduction: Warts are benign proliferation of the skin and mucosa caused by various strains of double stranded DNA human papilloma virus (HPV)[2]. Auto-implantation of wart is a novel, simple procedure which treats wart by stimulation of cell mediated immune response to clear HPV virus from the body[3].

Aim & Objectives: To study the role of auto-implantation therapy in cutaneous viral warts and to study the efficacy and safety of auto-implantation therapy in cutaneous viral warts.

Material & Methods: Total 60 patients [30 case and 30 control] of both sexes were included after randomization in the study.

Results: Total 29 cases out of 30 completed the treatment, 5 [17%] shows no response, 6 [20%] shows partial response and 18 [62%] shows complete response.

Conclusion: Autologous auto-implantation is an easy, minimally invasive technique, which helps in induction of an adequate immune response leading to resolution of warts.

KEYWORDS : Auto-implantation, human papilloma virus, verruca vulgaris.

INTRODUCTION:

Viral warts are the benign proliferation of skin, mucous membrane and other epithelial tissues caused by the various strains of human papilloma virus (HPV). HPV clinically manifest as common warts (a/k/a verruca vulgaris), filiform warts (a/k/a digitate wart), flat warts (a/k/a verruca plana), plantar warts, genital warts (a/k/a condyloma accuminata), oral and laryngeal papillomas and epidermodysplasia verruciformis.[7] Viral warts are benign growth as papillomas that can grow anywhere on the body, commonly on the extremities, hands and feet. Although some viral warts regress spontaneously, most of them require either medical or surgical treatment. Sometimes management is quite difficult, primarily due to recalcitrance to standard modalities of treatment and high rates of recurrence. It has potential for spread to contiguous sites and to contacts leading to disfigurement and psychosocial effects resulting in considerable morbidity and so there is a constant demand for its cure. Multiple available treatment options including cryosurgery, laser, electrocautery, radiocautery, curettage, and topical keratolytics are generally painful and limited by rate of recurrences.[6] Multiple immunotherapy trials are being tried for the recurrent and recalcitrant viral warts such as intra lesional MMR (Measles Mumps Rubella) vacccine, PPD (Purified protein derivative), Candida antigen, Tuberculine injection, BCG (Bacillus Calmette Guerin) vaccine and bleomycin injection with limited success.[1]

Auto-implantation of viral wart is a novel, simple, relatively non-invasive and painless procedure which reduces wart by means of stimulation of cell mediated immune response to clear HPV virus[5]. As the cell mediated immunity starts progressing, the viral growth usually regress in period of 4 to 8 weeks duration.[8] This procedure involves self implantation of cutaneous deep wart extracted from the donor site, chopping it with scissor into multiple tiny pieces and then implanting it into an uninvolved normal recipient skin. This procedure does not result in scar formation, as in case of other treatment options. If any scar at all develops whose chances are remote, it will be negligible. In multiple viral warts forming large plaque, especially of palms and soles, these destructive procedures are inappropriate and impractical[4].

MATERIAL & METHODS:

Total 60 cases were included in the study. The study design is case-control study. Patients of age >12 years and of both sexes [38 males and 22 females] were recruited. A detailed history regarding duration of existing and previous problem was taken. The patients are examined for various clinical lesions.

All the patients were divided into two groups, treatment and control groups. In treatment group, full thickness warty tissue was excised, minced and implanted in a dermal pocket. In the control group, warty tissue was only excised and not implanted, though a dermal pocket was made. The detailed procedure was explained to the patient and the written informed consent was taken. Taking all the aseptic precaution, full thickness warty lesion was excised, minced or chopped over glass slide into small pieces. Implantation of few (5-6) of these pieces for auto inoculation was performed in treatment group with 18G needle over left forearm on flexor aspect from appropriate lesions. If required, the next sitting for the auto implantation was performed after 8 weeks. The rest of the warty lesions were left in situ to be observed during further follow up after 4 weeks, 8weeks and 12 weeks duration.

Counselling regarding further follow up of the patient and outcome of the procedure was done to the patient. Results were noted down during the follow up period. Patient was advised for the next session of similar procedure after 8 weeks duration if required. The data was analyzed using appropriate statistics.

OBSERVATION AND RESULT:

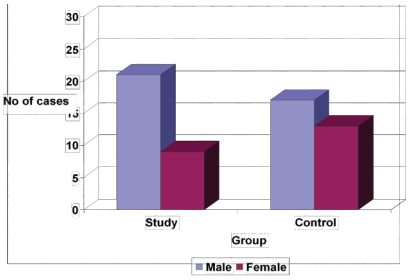

Diagram 1: Bar diagram showing sex wise distribution of cases in study and control group

Table 1: Auto implantation therapy observation at 3rd follow up in study and control group:

Auto implantation Therapy	Study	Control	Total
No response	5	24	29
Partial response	6	2	8
Complete response	18	1	19
Total	29	27	56

Chi square test= 29.62, p value< 0.0001

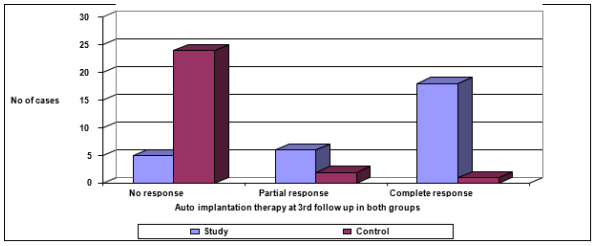

Diagram 2: Bar diagram showing auto implantation therapy observation at 3rd follow up in study and control group:

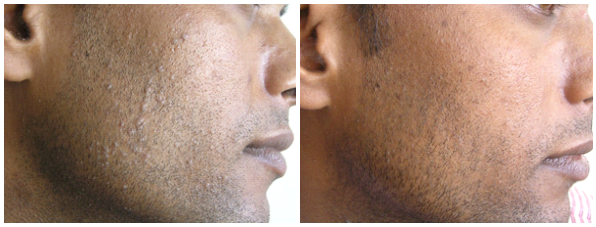

Image 1: Before auto-implantation **After auto-implantation**

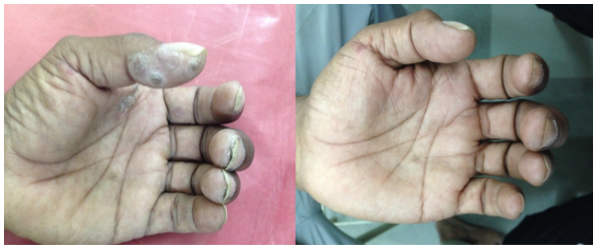

Image 2: Before auto-implantation **After auto-implantation**

DISCUSSION:

A total of 60 patients with multiple cutaneous viral warts were included in this study and results are obtained using appropriate statistics [chi square test]. Amongst them 38 [21 in study group and 17 in control group] are males (63.3%) and 22 [9 in study group and 13 in control group] are females (36.6%) with Male : Female ratio of 1.72:1. This study shows in general males are more affected than females. The comparison of age in study and control group with t value= 0.37 and p value= 0.71. Total of 4 (6.6%) patients were lost during the follow up process [1 in study group and 3 in control group]. So the final observation included total of 56 patients [29 in study group and 27 in control group].

Auto implantation therapy observation at third follow up in study and control group shows no response in total 29 [5 in study group and 24 in control group], partial response in total 8 [6 in study group and 2 in control group] and complete response in total 19 [18 in study group and 1 in control group]. There is significant improvement in study group as compared to control group patients. Auto implantation therapy with second sitting was done in total 24 patients [12 in study group and 12 in control group] on the basis of clinical response on second follow up i.e on 8th week. The observation was significant improvement showing complete response in 2, partial response in 5 and no response in 5 patients in study group.

The complication wise distribution of cases in study and control group shows complications like secondary infection in total 6 [4 in study group and 2 in control group], hypopigmentation in 2 study group patients and keloid in 1 study group patient with no evidence of any other complication in total 47 [22 in study group and 25 in control group].The complications are observed to be more in the study group as compared to control group. The complications are very few and infrequent as compared to previous studies in literature. The final results of this auto implantation study shows out of total 29 patients in study group there was complete response in 18 [62.06%] patients, partial response in 6 [20.68%] patients and no response in 5 [17.24%] patients in the study group. This is quite significant as compared to control group in which complete response was seen in 1 [3.7%], partial response in 2 [7.4%] and no response in 24 [88.88%] patients out of total 27 patients.

Evidence suggests that the patient's cell-mediated immunity plays an important role in the treatment of warts. Although some warts regress spontaneously, it can persist for years causing physical discomfort and psychological trauma.[2] There is no single treatment that is 100% effective. Hence, multiple modalities of treatment have been tried with variable outcomes. The ideal aims of the treatment of warts should be to remove the wart without recurrence, avoid aggressive (potentially scarring) procedures, and to assist the immune system in dealing more effectively with the virus and inducing life-long immunity to human papilloma viruses (HPVs).[5] The presence of local as well as systemic immunity may be necessary to eradicate the clinical manifestations of HPV infection. Warts in adults, in those with a long duration of infection and in immunosuppressed patients are less likely to resolve spontaneously and are more recalcitrant to treatment. The highest clearance rates for various treatments are observed usually in younger individuals who have a short duration of infection.[3]

Autoinoculation may work by activating a delayed hypersensitivity response to the wart tissue antigens, aiding clearance of both local and distant warts. This therapy was shown to be associated with the production of Th1 cytokines. Th1 cytokines TNF-α and IL-1 downregulate the transcription of HPV genes whereas INF-γ and IL-2 stimulate cytotoxic T cells and natural killer cells to eradicate HPV-infected cells.[8] Intralesional antigen therapy has been shown to alter the cytokine profile to a predominant Th1 type, decreasing the Th2 response and inducing strong cell-mediated immunity.[1]

CONCLUSION:

Auto implantation therapy is safe and efficatious modality of treatment for multiple and recurrent cutaneous viral warts. There is significant role of auto implantation therapy in the resolution of verrucous lesions over a period of 4-16 weeks duration as the strain affecting the cutaneous viral warts are itself inoculated subcutaneously by creating dermal pocket. So there is strain specific cell mediated immune response which acts on the same verrucae thus reducing further progression and resolution. Autologous auto-implantation is an easy, minimally invasive technique, which helps in induction of an adequate immune response leading to resolution of wart, more so in multiple warts involving distant sites. The side effects involved in the procedure is quite less and infrequent as compared to other modalities of treatment.

Conflict of interest: There are no conflict of interest.

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