

Effectiveness of autoimplantation in the treatment of multiple cutaneous warts

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Abstract

Viral warts are a common presentation to a dermatological practice. The standard treatment is freezing with liquid nitrogen which is a physical ablative method. Viral wart autoimplantation is a known method in the treatment of viral warts, but not very popular in day to day practice.

A randomized controlled trial was carried out to assess the efficacy and complications of auto wart implantation when compared to cryotherapy. A total of 120 patients were randomly allocated to the two treatment arms and the response to treatment was assessed monthly for 12 weeks. At the end of 12 weeks 90.7% of patients who received cryotherapy and 36.7% of patients who had autoimplantation had complete response ($p < 0.01$). The side effects were less in autoimplantation when compared to cryotherapy.

Cryotherapy gives significantly higher rates of complete response in treating viral warts when compared to autoimplantation. Although inferior to cryotherapy autoimplantation could be useful in selected cases of viral warts as a treatment option.

Introduction

Warts are mucocutaneous growths caused by human papilloma virus (HPV). They are asymptomatic lesions but people do seek medical treatment due to fear of spread and cosmetic concerns. As in all other viral infections viral warts also will have a spontaneous remission once the body develops the specific immunity against the virus. Patients who have spontaneous remission of viral warts have shown the development of cell mediated immunity and virus-specific IgM and IgG antibodies¹. However, this response can vary in each individual and the time taken for spontaneous resolution can take as long as even two years. Therefore dermatologists have a role in providing effective treatment with less side effects which will get rid of viral warts in a shorter time scale.

The commonly used method in the treatment for viral warts is freezing with liquid nitrogen (cryotherapy). This therapeutic modality is a physical ablative method destroying the viral particles. This

often leads to irritation, pain, recurrence, hypopigmentation and scars, and also warrants repeated clinic visits accounting to travel costs and absence from work.

The fact that the body develops specific immunity against the virus leading to a spontaneous remission could be used as a mechanism for a treatment modality. The immune system can be stimulated by exposing the virus to immune mediators thereby promoting spontaneous regression with long lasting immunity. Autoimplantation is a one-time procedure which treats the warts by stimulating an immune response against HPV^{2,3,4}. This is a well known method of treatment which could be especially useful when the number of viral warts is high. However, this is uncommonly practised in the day to day practice for reasons which are not well known. Therefore we thought it would be justified to assess the effectiveness and complications of this method in a scientific manner.

Objective

To determine the effectiveness and complications of wart auto implantation, in patients with multiple cutaneous warts compared to cryotherapy, which is the standard method of treatment for viral warts.

Methodology

A randomized control trial was carried out in the dermatology clinic of Teaching Hospital, Anuradhapura to achieve this objective. The ethical clearance was obtained from the ethics review committee of Faculty of Medicine, University of Rajarata. The study was carried out from June 2013 to June 2014.

Immunocompromised patients, pregnant/lactation mothers, children aged less than 12 years and people with a history of allergy to local anaesthetics were excluded from the study.

Informed consent was taken from all participants. For patients within the age group of 12-18 years

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proxy consent was taken from the parent or guardian. The participants were then randomly allocated to treatment group and control group (standard treatment with liquid nitrogen cryotherapy) by one of the investigators.

We adopted a recently published novel technique of wart implantation which is relatively easy to perform and associated with less discomfort to the patient⁵.

Donor tissue for autograft was harvested by paring a verrucous lesion with sterile surgical blade no 11 after cleansing. The pared stratum corneum was then transferred onto the sterile surgical gauze.

Autografting was done either on the non-dominant flexural forearm or the upper anteromedial thigh. The site for engraftment was cleansed with povidone iodine-spirit and infiltrated with about 0.5 ml of lignocaine with adrenaline (1:200,000). A subcutis deep stab incision of about 3-5 mm was made using the same surgical blade of no. 11 used for paring the wart. The pared tissue was introduced deep into the subcutis using tissue forceps or an insulin syringe. The margins of the wound was approximated by pressure and a micropore plaster was applied. Patients were put on oral antibiotics for 5 days, and if required, analgesics orally.

The control group was offered treatment with liquid nitrogen cryotherapy. Cryotherapy was performed by one of the investigators using the cryo gun. Freezing was done till there is a slight rim of frosting around each wart. Two freeze thaw cycles were given to each wart and the procedure was repeated two weekly.

Patients were assessed monthly and treatment response and complications of the treatment were documented by an investigator who was blind to the treatment.

Participants who achieved clearance of all lesions at the end of three months were considered as complete responders. 50% -100% clearance was considered as partial responders and <50% were considered as nonresponders.

At the end of 12 weeks of the study the non responders of the autoimplantation arm were offered treatment with cryotherapy which was the current treatment practice for cutaneous warts at the study centre.

Data was analysed using unpaired T test to measure significance. A p value less than 0.01 was considered as statistically significant.

Results

A total of 120 patients were included in the study, 17 patients were lost to follow up during the course of the monitoring period. Out of the 103 patients who completed the monitoring period, 52% were female and 48% were males. Majority (42%) belonged to the age group of 40 to 60 years. 40.7% had viral warts in both upper and lower limbs, 31% had on upper limbs and 11.6% had on lower limbs. Only 0.02% had periungual viral warts. Majority (44.6%) had 10 - 20 viral warts on their body. 49 (47.5%) received autoimplantation and 54 (52.5%) received cryotherapy as treatment.

At the end of three months 36.7% of the patients who received autoamputaion had achieved complete clearance, 12.2% had partial clearance and 51% were non responders. Out of the patients who received cryotherapy 90.7% were fully responders, and 9.3% were partial responders and 0% were non responders (Figure 1). 42.5% of the cryotherapy group achieved complete response at the end of 2 months requiring 5 treatment sessions.

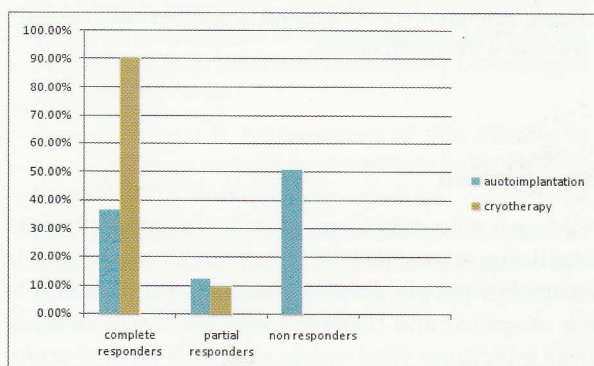


Figure 1. Therapeutic response at 12 weeks for autoimplantation and cryotherapy.

Response to cryotherapy was significantly higher when compared to auto implantation at the end of 12 weeks ($p < 0.01$).

All patients in the cryotherapy arm complained of pain during the procedure. 22.2% developed blistering at least during once during the treatment period, 27.7% developed hypo pigmentation, and 9.2% developed scarring after cryotherapy. Three patients (6.1%) developed a new viral wart at the implantation site and 5 (10.2%) developed an inflammatory reaction at the implantation site which settled over few days.

Discussion

Viral warts is a common clinical problem in any dermatology practice. Most of the time lesions are multiple necessitating cryotherapy to several points. This leads to much pain specially in the paediatric age group where viral warts are common. At the same time there are multiple other complications associated with cryotherapy specially in the darker skin. Therefore one time procedure like autoimplantation would be very much of value if successful.

Our study showed that the complete response for treatment with cryotherapy was significantly higher when compared to auto implantation. Cryotherapy is the standard treatment for viral warts over the years and these results are not surprising. Nevertheless, 36.7% of the patients who received autoimplantation achieved complete clearance during the study period. This may have been partially contributed by the natural spontaneous regression. As we haven't included a non interventional arm to the study we do not know to comment on this. However, although inferior to cryotherapy auto-implantation still remains a valuable tool to the Dermatologists armamentarium when treating viral warts. This could be more useful when the number of viral warts is high making cryotherapy difficult and painful.

We adopted a novel method described by K C Nischal et al which was easier to perform. Our success rate was very much lower than 74.1% success rate described in his study⁵. There are other studies which have stated a variable success rate ranging from 40 - 73.3% with viral auto implantation^{2,3,4}. The reasons for low success rates could be due to immuno competence status of the individuals or the viral types. As the viral serotyping was not done in our study as

well as the others comparison between the success rates become difficult.

However, when considering the side effect profile it shows that the side effect profile with cryotherapy was more when compared to viral wart autoimplantation.

Conclusion

Cryotherapy gives significantly higher rates of complete response when treating viral warts when compared to autoimplantation. Autoimplantation showed 36.7% complete clearance rate with low incidence of side effects.

Although inferior to cryotherapy autoimplantation could be useful in selected cases of viral warts as a treatment option.

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