

COMPARATIVE STUDY BETWEEN THE EFFICACY OF INTRALESIONAL BLEOMYCIN INJECTION VERSUS MICRONEEDLING-ASSISTED TOPICAL BLEOMYCIN SPRAYING IN TREATMENT OF PLANTAR WARTS

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Introduction

Plantar warts are benign epithelial tumors affecting the plantar surface of the foot. They are caused by various strains of HPV. They may cause pain and disfigurement. They mostly occur in children older than five years, adolescents and immunosuppressed patients. Treatment of plantar warts is a therapeutic challenge regarding both tolerability and efficacy. Bleomycin is used for the treatment of severe types of warts. The bleomycins are a group of water-soluble glycopeptides extracted from a strain of *Streptomyces verticillus* with an anti-bacterial, antiviral and cytotoxic activity. Intralesional bleomycin has been reported to be a promising approach and effective treatment of resistant warts, with cure rates from 63% to 100%. The mechanism of action of bleomycin in the treatment of warts is not clear. Bleomycin has been observed to inhibit DNA and protein synthesis and hence can induce tissue death. Microneedling uses fine needles to puncture the epidermis. Needling of plantar wart induces local inflammation and a subsequent cell mediated immune response against human papillomavirus. It is used also as a method of transdermal drug delivery by creation of micropores through the stratum corneum and this technique enhance the absorption of drugs like bleomycin, enhances the efficacy and decreases the period of therapy.

Aim of the work

The aim of this study is to compare between the efficacy of microneedling-assisted multipuncture technique with topical bleomycin spraying and intralesional injection of bleomycin in treatment of plantar warts.

Patients

Sixty patients of both genders diagnosed as plantar warts divided in to four groups with group A consists of twenty patients will be treated with intralesional bleomycin injection, group B consists of twenty patients will be treated with combined microneedling with topical spraying of bleomycin, group C consists of ten patients will be treated by intralesional injection of normal saline and group D consists of ten patients will be treated by microneedling with topical spraying of normal saline.

Methods

Group A will be treated with intralesional bleomycin with a single injection using insulin syringe needle every 2 weeks for a maximum of 4 sessions. The maximum total amount of bleomycin injected into a patient in one session will be 1 U/1 mL.

Group B will be treated with combined microneedling with topical spraying of bleomycin and followed by occlusion for 2 hours, every 2 weeks for a maximum of 4 sessions.

Group C will be treated by intralesional injection of normal saline every 2 weeks for a maximum of 4 sessions.

Group D will be treated with combined microneedling with topical spraying of normal saline and followed by occlusion for 2 hours, every 2 weeks for a maximum of 4 sessions.

Results

Table (1): Comparison between the different studied groups according to outcome

Outcome	Group A (n = 20)		Group B (n = 20)		Group C (n = 10)		Group D (n = 10)		χ^2	^{MC} p
	No.	%	No.	%	No.	%	No.	%		
No response	3	15.0	0	0.0	9	90.0	2	20.0	29.041*	<0.001
Partial resolution	1	5.0	2	10.0	0	0.0	2	20.0		
Complete resolution	16	80.0	18	90.0	1	10.0	6	60.0		
^{MC} p ₁			0.401		<0.001*		0.398			
Sig. bet. grps.			^{MC} p ₂ <0.001*, ^{MC} p ₃ =0.066, ^{MC} p ₄ =0.006*							

Figure(1): Comparison between the different studied groups according to outcome.

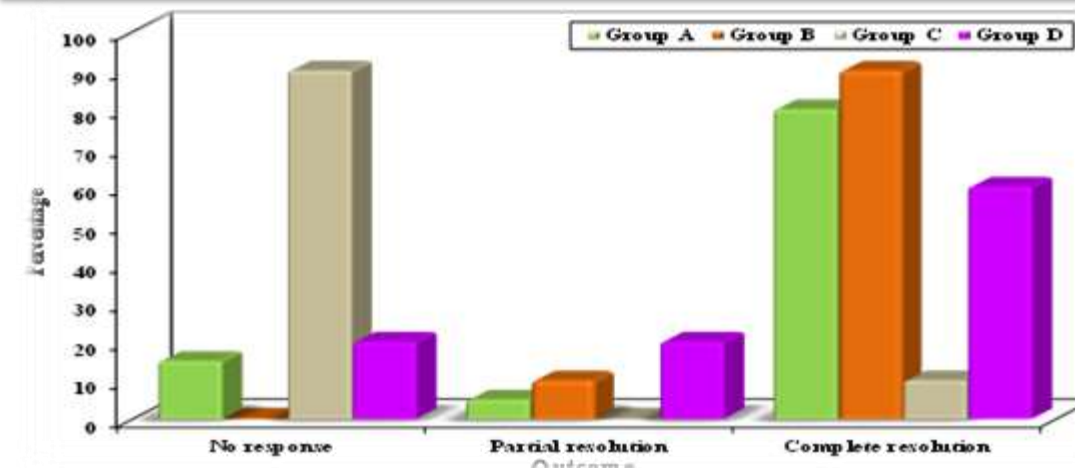
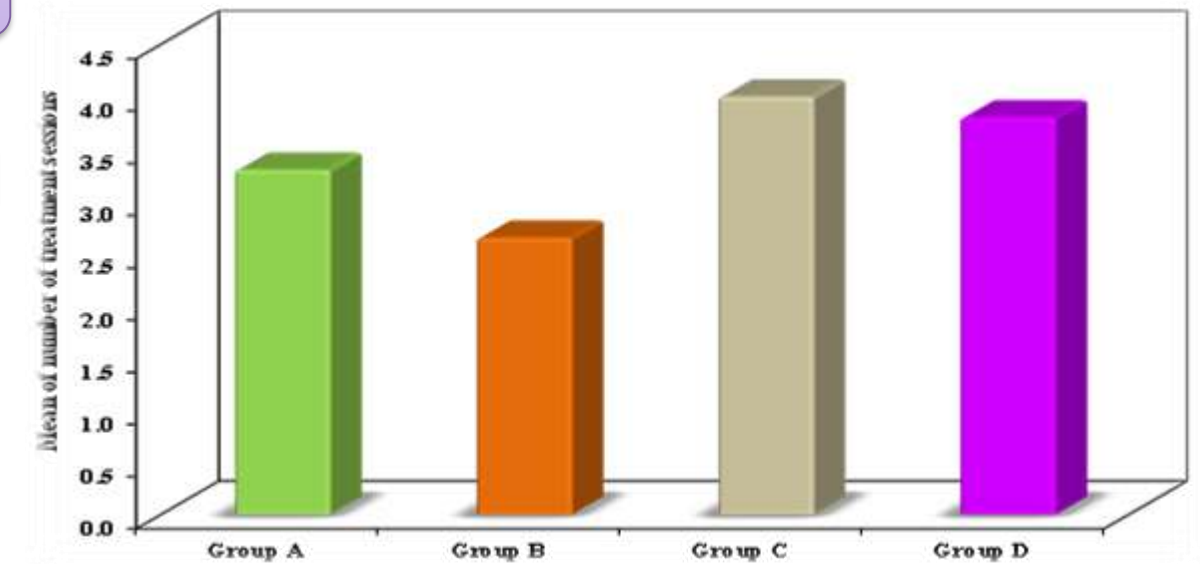


Table (2): Comparison between the different studied groups according to number of treatment sessions

Number of treatment sessions	Group A (n = 20)	Group B (n = 20)	Group C (n = 10)	Group D (n = 10)	Test of Sig.	p
Min. – Max.	1.0 – 4.0	1.0 – 4.0	4.0 – 4.0	3.0 – 4.0	H= 19.491*	<0.001*
Mean ± SD.	3.30 ± 0.92	2.65 ± 0.93	4.0 ± 0.0	3.80 ± 0.42		
Median (IQR)	4.0 (3.0 – 4.0)	2.0 (2.0 – 3.5)	4.0 (–)	4.0 (4.0 – 4.0)		
p ₁		0.027*	0.033*	0.165		
Sig. bet. grps.		p ₂ <0.001*,p ₃ =0.001*,p ₄ = 0.520				

Figure (2): Comparison between the different studied groups according to number of treatment sessions.



Conclusion

Microneedling assisted topical bleomycin spraying is highly effective in treatment of plantar warts. Microneedling decreases pain, enhances drug delivery, decreases number of treatment sessions needed and increases cure rate.