

Efficacy of 10% Potassium Hydroxide Solution Versus 10% Salicylic Acid Ointment in Treatment of Molluscum Contagiosum - the Low - Cost Dermatologic Therapy in Vietnam

Sau Nguyen Huu^{1,2}, Minh Nguyen Quang¹, Thuong Nguyen Van^{1,2}, Kiem Pham Cao¹, Hien Do Thi Thu¹, Lan Pham Thi^{1,2}, Van Tran Cam¹, My Le Huyen¹, Khang Tran Hau^{1,2}, Marco Gandolfi³, Francesca Satolli³, Claudio Feliciani³, Michael Tirant^{4,5}, Aleksandra Vojvodic⁶, Torello Lotti⁴

¹National Hospital of Dermatology and Venereology, Hanoi, Vietnam; ²Hanoi Medical University, Hanoi, Vietnam; ³University of Rome G. Marconi, Rome, Italy; ⁴University of Rome G. Marconi, Rome, Italy; ⁵Psoriasis Eczema Clinic, Melbourne, Australia; ⁶Department of Dermatology and Venereology, Military Medical Academy of Belgrade, Belgrade, Serbia

Abstract

Citation: Nguyen Huu S, Nguyen Quang M, Nguyen Van T, Pham Cao K, Thi Thu HD, Pham Thi L, Tran Cam V, Le Huyen M, Tran Hau K, Gandolfi M, Satolli F, Feliciani C, Tirant M, Vojvodic A, Lotti T. Efficacy of 10% Potassium Hydroxide Solution Versus 10% Salicylic Acid Ointment in Treatment of Molluscum Contagiosum - the Low - Cost Dermatologic Therapy in Vietnam. Open Access Maced J Med Sci. 2019 Jan 30; 7(2):269-271. <https://doi.org/10.3889/oamjms.2019.090>

Keywords: Molluscum contagiosum; Potassium Hydroxide; Salicylic pomade

***Correspondence:** Marco Gandolfi, Unit of Dermatology, University of Parma, Parma, Italy. E-mail: marco.gandolfi5@gmail.com

Received: 02-Jan-2019; **Revised:** 16-Jan-2019; **Accepted:** 17-Jan-2019; **Online first:** 28-Jan-2019

Copyright: © 2019 Sau Nguyen Huu, Minh Nguyen Quang, Thuong Nguyen Van, Kiem Pham Cao, Hien Do Thi Thu, Lan Pham Thi, Van Tran Cam, My Le Huyen, Khang Tran Hau, Marco Gandolfi, Francesca Satolli, Claudio Feliciani, Michael Tirant, Aleksandra Vojvodic, Torello Lotti. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

Funding: This research did not receive any financial support

Competing Interests: The authors have declared that no competing interests exist

BACKGROUND: Molluscum contagiosum is a common viral disease primarily affecting children.

AIM: The objective is to compare the efficacy of 10% potassium hydroxide (KOH) solution versus 10% salicylic pomade in the treatment of molluscum contagiosum.

METHODS: Clinical trials on 70 patients were randomised into 2 groups: 39 patients treated with 10% KOH solution and 31 patients treated with 10% salicylic pomade. The evaluation was based on the complete clearance of lesions, side effects and complications of the drug.

RESULTS: The clearance of all lesions after 2, 4, 6, 8 weeks of treatment in both groups were 7.7%; 23.1%; 53.8%; 79.5% and 0%; 3.2%, 9.7% 22.6%, respectively ($p < 0.05$). Side effects were seen in both groups include burning (76.9% versus 19.4%; $p < 0.05$); redness (59% versus 14%; $p < 0.01$); desquamation (12.8% versus 19.3%; $p < 0.05$).

CONCLUSION: The efficacy of KOH solution in the treatment of MC was better than that of salicylic pomade and both products are safe, effective, and easy to apply at home.

Introduction

Molluscum Contagiosum is caused by a Pox virus family, affecting mainly children with prevalence in immunocompetent children of approximately 7% and human immunodeficiency virus (HIV) positive adult patients up to 18% [1].

Previous studies have shown the efficacy of KOH solution in various concentrations to treat molluscum contagiosum [2], [3].

This study aims to compare the efficacy of 10% KOH solution and 10% salicylic acid pomade for

treating molluscum contagiosum in Vietnamese children.

Methods

Seventy patients were randomly divided into 2 groups: 39 patients were treated with 10% KOH, 31 patients were treated with 10% salicylic. The 2 groups had no differences in age, gender, or location and severity of their condition.

All procedures performed in studies involving human participants were by the ethical standards of institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by the institutional review board of the National Hospital of Dermatology and Venereology, Hanoi, Vietnam.

The products were applied directly on the lesions by a small cotton swab one time/day before going to bed until the lesions disappeared.

Results

After 8 weeks of treatment, the rates of complete resolution in 39 patients treated with KOH 10% solution and 31 patients treated with salicylic 10% were 79.5% and 22.6% ($p < 0.01$), respectively. The rates of partial resolution in the group treated with KOH solution and in patients treated with salicylic 10% were 20.5% and 77.5% ($p < 0.01$), respectively. Patients in group 1 took less time to be cured. After 2 weeks, 7.7% (3/39) of patients in group 1 and 0 patients in group 2 were cured. After 4 weeks and 6 weeks, the complete clearance of lesions in group 1 and group 2 were 23.1% and 3.2%, 53.8% and 9.7%, respectively.

It was also noted that, in both groups, the rate of resolution in the patients having no other skin diseases was higher than that in patients with other skin disorders such as dermatitis or dry skin (28.2% of the patients suffering from atopy dermatitis or dry skin in group 1 were cured versus 9.7% in group 2 ($p < 0.05$) as shown in Table 1 and Figure 1.

Table 1: The resolution of skin lesions after 8 weeks treatment in both groups

Result		KOH 10% (n = 39)		Salicylic 10% (n = 31)		p
		n	%	n	%	
Complete resolution	Atopy dermatitis + dry skin	11	28.2	3	9.7	< 0.05
	No combination skin diseases	20	51.3	4	12.8	
Partial resolution	Atopy dermatitis + Dry skin	5	12.8	10	32.3	< 0.05
	No combination skin diseases	3	7.7	14	45.2	

Treatments were also found to influence other skin diseases. We found that a 10% KOH solution was more effective than 10 % salicylic acid. 28.2% (11/16) of patients suffering from atopy dermatitis or dry skin in group 1 were cured, compared to only 9.7% (3/10) (Table 1; $p < 0.05$) in group 2. In patients with atopy dermatitis or dry skin, molluscum contagious lesions tend to diffuse and recur.

Investigating the side effects of both products revealed that 76.9% of patients in group 1 had burning

sensations immediately after application.



Figure 1: A) 8-year-old girl after 2 days of treatment; B) Another child had excellent improvement after treatment by KOH solution

The rates of erythema, itching, and desquamation were 59%, 17.9% and 12.8% respectively. In group 2, the data is 19.4%, 14%, 16.1% and 19.3%, respectively (Table 2; $p < 0.05$). These results are similar to a study by Melkar [2].

Table 2: Side effects immediately after applying for medicines

Symptoms	KOH 10%		Salicylic 10%		p
	n	%	n	%	
Burning	30	76.9	6	19.4	< 0.05
Erythema	23	59	4	14	< 0.01
Itching	7	17.9	5	16.1	> 0.05
Desquamation	5	12.8	6	19.3	< 0.05

Discussion

Sang-Hee Seo et al. showed that 77% (10/13) of the patients treated with KOH 10% were cured after 8 weeks [3]. The Mahajan BB et al., a study on 27 children with molluscum contagiosum treated by topical 20% KOH solution once daily, demonstrated that 88.9% of patients who completed the trial experienced complete clearance [4]. A study by Leslie et al. showed that salicylic acid was effective for treating molluscum contagiosum, with 87.5% (21/24) of patients being cured. They used 12% salicylic acid gel, and the results were assessed after 24 weeks [5].

Evaluating and comparing the 10% KOH solution versus the 10% salicylic pomade in the treatment of molluscum contagiosum at the National Hospital of Dermatology and Venereology, we noted that both products are safe and easy to apply at home.

Use of 10% KOH shows the best

effectiveness, useful for the domestic therapy in children with many lesions, especially those with atopy dermatitis.

References

1. Dave D, Abdelmaksoud A. Glycolic acid cream for the treatment of molluscum contagiosum. *Dermatologic therapy*. 2018; 31(5):e12630. <https://doi.org/10.1111/dth.12630> PMID:30155957
2. Metkar A, Pande S, Khopkar U. An open, nonrandomized, comparative study of imiquimod 5% cream versus 10% potassium hydroxide solution in the treatment of molluscum contagiosum. *Indian Journal of Dermatology, Venereology, and Leprology*. 2008; 74(6):614-8. <https://doi.org/10.4103/0378-6323.45104>
3. Seo SH, Chin HW, Jeong DW, Sung HW. An open, randomized, comparative clinical and histological study of imiquimod 5% cream versus 10% potassium hydroxide solution in the treatment of molluscum contagiosum. *Annals of dermatology*. 2010; 22(2):156-62. <https://doi.org/10.5021/ad.2010.22.2.156> PMID:20548905 PMCid:PMC2883417
4. Mahajan BB, Pall A, Gupta RR. Topical 20% KOH-An effective therapeutic modality for molluscum contagiosum in children. *Indian Journal of Dermatology, Venereology, and Leprology*. 2003; 69(2):175-7. PMID:17642872
5. Leslie KS, Dootson G, Sterling JC. Topical salicylic acid gel as a treatment for molluscum contagiosum in children. *Journal of dermatological treatment*. 2005; 16(5-6):336-40. <https://doi.org/10.1080/09546630500430521> PMID:16428156