

Molluscum contagiosum in children: comparative treatments

Molusco contagioso em crianças: tratamentos comparativos

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This study was carried out at the Internal Medicine/Dermatology Department of the Universidade Federal de Ciências da Saúde de Porto Alegre – Faculdade de Medicina and the Dermatology Outpatient Clinic of the UFCSPA – Centro de Saúde Santa Marta – Porto Alegre (RS), Brazil.

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ABSTRACT

Introdução: Molluscum contagiosum is a dermal viral infection commonly occurring in childhood. Although self-limited, this disease is contagious and involves complications such as pruritus, eczema and bacterial superinfection. A therapeutic approach is often required, and treatment selection depends on its effectiveness and patient tolerance.

Objective: Compare 3 treatments in children regarding efficacy, adverse effects and psychological impact, in efforts to customize the treatment approach.

Methods: Randomized, comparative and prospective study of patients aged 3 to 15, divided into 3 groups. The trunk and face were the most frequently affected sites. Group 1 was treated with 10% potassium hydroxide, Group 2 with a combination of salicylic and lactic acids, and Group 3 with curettage. Parental satisfaction regarding comfort and treatment cost was assessed in each group.

Results: Although some tendencies could be identified, the study did not detect statistical differences between the treatment groups. Group 1 experienced more pain, and a greater number of patients with complications at the end of the follow-up period. Group 3 patients were more cooperative in their treatment, since this method was the quickest and presented the fewest side effects, resulting in greater parental satisfaction.

Discussion: Curettage (Group 3) and the combination of salicylic and lactic acids (Group 2) were equally effective, although the results for Group 2 were more gradual.

Conclusion: Treatment of this condition must be individualized, taking the patients' preference, tolerance and availability of time into consideration.

Keywords: molluscum contagiosum; curettage; efficacy.

RESUMO

Introdução: Molusco contagioso é dermatovirose comum na infância. Embora autolimitada, preconiza-se o tratamento por ser contagiosa e determinar complicações. Na escolha terapêutica, consideram-se efetividade e tolerância.

Objetivos: Comparar três tratamentos em crianças quanto à eficácia, aos efeitos colaterais e ao impacto psicológico, com a finalidade de individualizar a abordagem.

Métodos: Estudo comparativo, randomizado e prospectivo, utilizando três terapias para molusco contagioso, em 50 pacientes com idade entre três e 15 anos, divididos em três grupos. O grupo 1 foi tratado com hidróxido de potássio 10%, o grupo 2 com combinação de ácidos salicílico e láctico, e o grupo 3 com curetagem.

Resultados: O estudo não mostrou diferença estatística nas análises realizadas, apesar de determinar algumas tendências. O grupo 1 mostrou mais complicações e dor, assim como mais pacientes com lesões ao final do seguimento. Os pacientes do grupo 3 foram os mais colaborativos no tratamento, sendo o método mais rápido e que gerou maior satisfação. **Discussão:** A curetagem e a combinação de ácido salicílico e láctico foram igualmente eficazes, tendendo a última à demora na resolução.

Conclusão: Os autores acreditam que o tratamento deve ser individualizado, considerando a preferência do paciente, sua tolerância e tempo disponível.

Palavras-chave: molusco contagioso; curetagem; eficácia.

INTRODUCTION AND OBJECTIVES

Molluscum contagiosum (MC) is a viral dermatosis caused by a poxvirus of the gender Molluscipox virus¹ that can affect any area of the body; the upper trunk, axillae, cubital and popliteal fossae, and internal inguinal areas are the most frequently affected areas.^{1,2,3,4} It is a universal infection, with greater preference for tropical regions and greater incidence in children; also occurs in sexually active and immunodeficient adults.³ It is transmitted by direct contact, contaminated fomites or autoinoculation.^{3,5} From the clinical perspective, the condition presents itself as sessile and firm small papules, with central umbilication.^{1-3,6,7} It is clinically diagnosed by the lesions' appearance and, when there is doubt, histological analysis can be helpful.⁸ Although benign and usually self-limited, lesions can lead to complications such as inflammation, pruritus, eczematization, secondary bacterial infection and permanent scars.³ MC can also cause embarrassment and affect patients' academic, professional and social activities.¹ Therefore, treatment of the lesions is recommended.²

Different approaches to treating this infection are described in the literature, including waiting for it to disappear on its own.^{5,9} Although there is no consensus on the best method, curettage is considered in several studies to be the gold standard in the treatment of MC; it is cited as the most effective and as having the lowest recurrence rate.^{1,4,7,9,10} When choosing a treatment, several aspects are considered, such as effectiveness and recurrence condition.^{7,9,10} Secondary aspects, such as the physical and psychological tolerance of the therapy, the patient's or parent's preference, the family's economic situation, and the availability and ease of access to the medical practice, should also be taken into account.^{11,12} The most cited treatment techniques in the literature are: cryotherapy; curettage; laser therapy; and several topical substances – tretinoin, potassium hydroxide (KOH), imiquimod, cantharidin, trichloroacetic acid and the combination of salicylic and lactic acids are the most common.^{3,8,13} There are also descriptions of the use of immunomodulators and antivirals.^{11,14,15}

Since curettage is one of the more frequently performed MC treatments in the care service where the authors work, we have chosen to compare it to other popular procedures and recommend the most effective approach based on this evidence. In this study, three different techniques for treating MC in children were evaluated: curettage, 10% KOH, and the combination of salicylic and lactic acids. General aspects of MC treatment were evaluated in addition to the efficacy and psychological effects.

Comparing different treatment techniques for MC helps to tailor the clinical approach to the patient's individual characteristics in order to achieve a satisfactory therapeutic result with minimal psychological and economic impacts. In this manner, the objective is to find an effective therapy that is equally convenient for the patient and parent.

METHODS

A prospective and randomized clinical test was carried out to compare three types of treatment for MC. The study sample

included patients from 3 to 15 years old, clinically diagnosed with MC and under treatment at the Santa Marta Health Center's Dermatology Department of the Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA), between November 2008 and May 2009. Patients were accompanied by their parent or guardian, to whom the term of informed consent was presented. The analysis protocol was submitted and approved by the UFCSPA's Ethics Research Committee. Patients with different ages from those stipulated by the age group, who had undergone treatment for MC during the previous 30 days, those who had periorbital, perioral or perigenital lesions, and those who were immunodeficient were excluded from the study.

Patients were allocated randomly into three study groups: Group 1 – topical use of 10% KOH in aqueous solution, applied twice a day at home; Group 2 – application of combination of 14% salicylic acid and 14% lactic acid in collodion (Verrux®, Theraskin Labs, São Paulo, Brazil) once a day at home; and Group 3 – curettage of the lesions at the clinic with a n. 4 curette, after use of topical anesthesia with 5% lidocaine occlusive cream, on each lesion, for one hour. Micropore (3M) curative bandages were applied on each curetted lesion. Groups 1 and 2 were evaluated every 15 days for 90 days. Group 3 patients were evaluated on days 7 and 90 after the procedure. The incidence of side effects, such as erythema, edema, pruritus, and secondary infection in the place of the lesions were analyzed at each visit. The Visual Analogue Scale (VAS), a psychometric tool used in questionnaires to measure subjective items, was used to evaluate the physical tolerance to the procedure on day 15 for Groups 1 and 2, and on day 7 for Group 3.

At the end of the study (90th follow up day), parents were asked about the economic impact and comfort of the technique through an open question. The resolution of the lesions was also evaluated. SPSS 11.0 software was used to analyze the data. The Chi Squared test and Fisher's Exact test (both at a 5% significance level) were used to analyze the main variables.

RESULTS

Of the 50 patients (26 females, average age 6.56) 66% presented less than 20 lesions, 28% presented from 20 to 40 lesions, and 6% presented more than 40 lesions at the initial examination. The location of the lesions on the body was as follows: trunk (54%), upper limbs (26%), lower limbs (26%), face (32%) and cervical region (28%) region; 48% suffered from atopic dermatitis. Some patients (10%) had previously been infected with MC, and had undergone treatment more than six months before. Patients were randomly distributed among groups: 17 in Group 1, 16 in Group 2 and 17 in Group 3. Side effects in the first evaluation and at the end of the follow-up are presented in Table 1. The evaluation of the tolerance to the procedure, assessed using the VAS in the first visit, revealed that 58% of the patients in Group 1 reported moderate pain (4-7), while in Groups 2 and 3, 50% and 71.4%, respectively, indicated minor pain (1-3) ($p = 0.23$). Patients in Group 3 were more collaborative with the treatment (78.5%) than those in Group 1 (50%)

Table 1 - Side effects by treatment method

	ERYTHEMA		EDEMA		PRURITUS		SECONDARY INFECTION	
	Baseline	90 days	1 st evaluation	90 days	1 st evaluation	90 days	1 st evaluation	90 days
Group 1	73.3%	20%	20%	0	57.1%	20%	6.6%	0
Group 2	42.8%	0	7.1%	0	50%	11%	0	0
Group 3	35.7%	0	0	0	21.4%	0	7.1%	0
P	0.97	0.08	0.17	–	0.16	0.23	0.60	–

and Group 2 (60%) ($p = 0.30$). The treatment did not hinder the daily activities of the parents or guardians, and there were no difficulties in adhering to the treatment regime at home. Some of the relatives missed days of work to take the patient to the appointment (1.7 days lost on average, per patient).

For the qualitative analysis of the treatment, parents were asked about their impressions regarding the comfort of the treatment for their children, the effectiveness of the procedure, the symptoms verified during the treatment, and the cost. Most of the relatives reported satisfaction, with more evident complaints linked to the delay in the presentation of the results in Groups 1 and 2. At the end of the follow-up period (day 90 after the procedure), 6 patients still presented clinically detectable MC lesions: 3, 1 and 2 in Groups 1, 2 and 3, respectively, with no statistical significance among the groups.

DISCUSSION

There is no consensus regarding the most effective treatment for this dermatosis. Although waiting for the condition to resolve on its own is an option, many parents and patients prefer the removal of the lesions.

Good reviews comparing available treatments have been published.^{2,16,17} The treatments are classified into destructive, immunomodulators and antiviral. Destructive treatments are the most common and include curettage, cryotherapy and the application of keratolytic substances (salicylic and lactic acids, tretinoin) or vesicants (cantharidin).² A review by Brown and colleagues compared several treatment options for MC, describing their advantages and disadvantages. There has been a preference for destructive treatments (cantharidin, cryosurgery and curettage) because they showed fast results with few adverse effects.¹⁸

The present study did not present a statistical difference in any of the analyses conducted, in spite of the tendencies verified in some of them. For instance, in the pain evaluation, more than half of the patients who received KOH treatment reported moderate pain, while minor pain was most reported in the other two groups. Nevertheless, it is important to note that patients in the curettage group were questioned on the 7th day after the procedure, which might have caused a memory bias. Most of the parents answered the open question about the treatment's comfort with positive sentences. Parents of children in the curettage group complained less – probably due to the faster resolution of the condition and the fewer follow-up visits.

A 2006 prospective, randomized study demonstrated that curettage was more effective and caused fewer adverse effects than cantharidin, imiquimod and combination salicylic and lactic acid. Only 16% of the patients who underwent curettage needed second consults. More than 40% of patients from other treatment groups returned to the practice for new consultations.² This study also reported parent preference for curettage treatment.

Curettage must be well explained before the procedure is conducted so that the parent understands the treatment.² In this study, the treatments conducted at home were also effective, however there were more complaints about the delay of the results and the number of follow-up visits. No important complication was reported, and the differences among adverse effects were not statistically significant among the groups, despite the fact that the KOH group presented more erythema and pruritus at the end of the follow-up.

CONCLUSIONS

This objective of this study was to evaluate which MC treatment would be the most effective and convenient for both the patients and their caretakers. Since curettage is one of the more frequently used treatments in the clinic studied, we compared it with other two other techniques in order to gather evidence on comfort and effectiveness. Although some tendencies were observed, the results were not statistically significant. Results are limited due to the fact that it was not a blind study: both the evaluator physician and the person responsible for the child knew which therapy was being applied. Curettage presented faster results and fewer complications, and generated higher satisfaction; therefore it is a technique that can be recommended for children. It is fundamental that the responsible person understands the procedure thoroughly.² The combination of salicylic and lactic acids was equally effective, although it took longer. KOH therapy was also effective, however it was more painful and presented more complications. Therefore, the treatment of MC should be individualized, with the expectations and availability of the responsible persons always taken into account.

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REFERÊNCIAS

1. Sampaio SAP, Rivitti EA. *Dermatologia*. 2ª Ed. São Paulo: Editora Artes Médicas; 2001.
2. Hanna D, Hatami A, Powell J, Marcoux D, Maari C, Savard P, et al. A prospective randomized trial comparing the efficacy and adverse effects of four recognized treatments of molluscum contagiosum in children. *Pediatr Dermatol*. 2006; 23(6):574-9.
3. Hanson D, Diven DG. Molluscum Contagiosum. *Dermatol Online J*. 2003; 9(2): 2.
4. Fitzpatrick TB, Eisen AZ, Wolff K, Freedberg IM, Austen KF, editors. *Fitzpatrick's Dermatology in General Medicine*. 4ª ed. EUA: Mc Graw-Hill; 1993.
5. Romiti R, Ribeiro AP, Romiti N. Evaluation of the effectiveness of 5% potassium hydroxide for the treatment of molluscum contagiosum. *Pediatr Dermatology*. 2000; 17(6):495.
6. Short KA, Fuller C, Higgins EM. Double-blind, randomized, placebo-controlled trial of the use of topical 10% potassium hydroxide solution in the treatment of molluscum contagiosum. *Pediatr Dermatol*. 2006; 23(3):279-81.
7. Bologna JL, Jorizzo JL, Rapini RP. *Dermatology*. EUA: Mosby; 2003.
8. Bauer JH, Miller OF, Peckham SJ. Medical Pearl: confirming the diagnosis of molluscum contagiosum using 10% potassium hydroxide. *J Am Acad Dermatol*. 2002; 56(5):105.
9. Van der Wouden JC, Menke J, Gajadin S, Koning S, Tasche MJ, van Suijlekom-Smit LW, et al. Interventions for Cutaneous Molluscum Contagiosum. *Cochrane Database Syst Rev*. 2006; 19(2): CD004767.
10. Jones S, Kress D. Treatment of Molluscum Contagiosum and Herpes Simplex Virus. *Cutis*. 2007; 79(4):11-17.
11. Baverl C, Feller G, Goerd S. Experience in Treating Molluscum Contagiosum in Children with Imiquimod 5% Cream. *Br J Dermatol*. 2003; 149(6):25-9.
12. Romiti R, Ribeiro AP, Grinblat BM, Rivitti FA, Romiti N. Treatment of Molluscum Contagiosum with Potassium Hydroxide: a Clinical Approach in 35 Children. *Pediatr Dermatol*. 1999; 16(3):228-231.
13. Leslie KS, Dootson G, Sterling JC. Topical salicylic acid gel as a treatment for molluscum contagiosum in children. *J Dermatol Treat*. 2005; 6(5-6):336-340.
14. Toutous-rellu L, Hirschel B, Piguet V, Schiffer V, Saurat JH, Pechère M. Treatment of cutaneous human papiloma virus, poxvirus and herpes simplex virus infections with topical cidofovir 3% in HIV positive patients. *Ann Dermatol Venereol*. 2004; 131(5):445-9.
15. SKINNER RB. Treatment of molluscum contagiosum with imiquimod 5% cream. *J Am Acad Dermatol*. 2002; 47(4):221-4.
16. Silverberg NB. Pediatric molluscum contagiosum: optimal treatment strategies. *Pediatr Drug*. 2003; 5(8):505-12.
17. Ting PT, Dytoc MT. Therapy of external anogenital warts and molluscum contagiosum: a review literature. *Dermatol Ther*. 2004; 17(1):68-101.
18. Brown J, Janniger CK, Schwartz RA, Silverberg NB. Childhood molluscum contagiosum. *Int J Dermatol*. 2006; 45(2):93-9.