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A comparative study of 10% KOH and glycolic acid 12% cream for treatment of molluscum contagiosum

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KOH, glycolic, cream, molluscum &contagiosum.
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Abstract:

Background & Methods: The aim of the study is to comparative study of 10% KOH and glycolic acid 12% cream for treatment of molluscum contagiosum. After obtaining permission from the Institutional Ethics Committee, 184 patients of all ages and either gender with minimum 03 lesions of molluscum contagiosum were recruited to this study. Written informed consent was obtained. Details of symptoms, size of lesions, duration, site, and number of lesions was recorded on each visit.
Results: The clearance of total lesions among study subjects of two groups at various follow up intervals results revealed that at baseline to 3 weeks, <25% clearance was the most common in both groups (78.7% in Group 1 and 78.9% in Group 2). baseline to 6 weeks, 26-50% clearance was the most common in both groups (63.8% in Group 1 and 65.6% in Group 2), By 12 weeks, 51-75% clearance was the most common in both groups (51.1% in Group 1 and 57.8% in Group 2).
Conclusion: To conclude our study found that both treatments were effective in reducing the number of lesions, but glycolic acid 12% cream (GA12) was more effective in clearing larger lesions (>5mm) at 6 and 12 weeks of treatment. However, no significant differences were observed in the total number of lesions between the two groups at any follow-up interval. The most common side effect was erythema, which was more common in the GA12 group. Burning was less common and did not differ significantly between the groups

Introduction

Molluscum contagiosum (MC) is a cutaneous viral infection A self-limiting infectious dermatosis with worldwide occurrence and its primary mode of transmission being direct human to human contact including sexual means[1]. It occurs frequently in children but can also affect adolescents and adults. In adults it is more common in immunocompromised people and sexually active adults. Clinical manifestations include umbilicated pink or skin-colored papules[2]. Which can present as a single, numerous, or clustered lesion, and an surrounding erythematous halo may occasionally be present. The lesions are usually spherical, dome-shaped, pear-shaped, and white to flesh-colored. Direct skin contact—which could include sexual,

non-sexual, or autoinoculation—or contact with contaminated materials like sponges or towels are distinct ways through which MC virus is spread. It has also been shown to spread via use of the swimming pool[3].

In immunocompetent adults, it usually involves one to two regions of body. However, in children and patients with immunocompromised conditions, various regions of the body are usually affected[4]. Most molluscum contagiosum lesions in non-compromised persons resolve spontaneously within an average duration of six to 12 months. However, the course of molluscum contagiosum may take as long as four years. During that period, some mollusca may heal without any intervention. The molluscum contagiosum virus, in contrast to other viruses, leaves the body when it heals. Nonetheless, molluscum contagiosum can recur following frequent contact with an infected individual or contaminated fomite. Molluscum contagiosum rarely leaves scars unless the sores are scraped or irritated. Resistance to therapy and extended duration are typical in immunocompromised individuals. No reports of malignant transformation exist[5-7].

The diagnosis of molluscum contagiosum is usually done clinically. The need for laboratory diagnosis of molluscum contagiosum is speculative, however the clinician might consider the laboratory diagnosis before initiating therapy for confirmation of molluscum contagiosum. But, diagnosis of the disease is only more useful when there is an effective treatment modality available for the clinician. Especially those lesions present on genitalia should be treated in order to break the chain of sexual transmission and/or auto-inoculation. The active treatment of lesions is significant for cosmetic reasons or concerns of transmission and autoinoculation. Active treatments may be mechanical (e.g. enucleation ,cryotherapy, curettage, pulsed dye laser therapy), chemical (e.g. cantharidin, potassium hydroxide, podophyllotoxin, benzoyl peroxide, tretinoin, trichloroacetic acid, lactic acid, glycolic acid, salicylic acid), immune-modulating (e.g. imiquimod, interferon-alpha, cimetidine) and anti-viral (e.g. cidofovir) [8]. However, the choice of treatment method should depend on the physician's comfort level with the various treatment options, the patient's age, the number and severity of lesions, location of lesions, and the preference of the child/parents.

Material and Methods

Patients of all ages, either gender with clinically diagnosed molluscum contagiousm presenting in Department of Dermatology in People's College of Medical Sciences & Research Centre Bhopal for 18 Months.

Patients were followed up at 3rd week, 6th week and 12th week of treatment.

At first visit Patients were divided by the lottery method into two groups; A and B.

Patients were followed up at 3th, 6th and 12th week of treatment.

Size and number of lesions, was recorded at each visit. Based on size, lesions were divided into three groups -

- Lesions of size less than 3 mm
- Lesions of size 3-5 mm
- Lesions of size more than 5 mm

Number of lesions in all 3 groups and total number of lesions were noted on each follow up.

At 12 weeks clinical response to treatment was graded based on total number of lesions as -

- No change – if less than 25 percent showed improvement
- Partial clearance – when more than 25 percent but less than 90 percent

lesions cleared. This group was further subdivided into 3 subgroups-
25%-50% improvement
50 % - 75 % improvement
75 % - 90% improvement

• Complete clearance – if more than 90 percent lesions showed improvement

Group A: Patients in Group A were given glycolic acid 12% cream at night.

Group B: Patients in Group B were given 10% KOH solution which was prepared using KOH pellets in pharmacology lab of our institute with instructions to apply the solution using a tooth pick after covering the surrounding area with petroleum jelly to avoid any spillage over the normal skin.

Inclusion criteria:

- All patients of molluscum contagiosum & who were not on treatment for molluscum contagiosum for the past 2 months
- with number of lesions- atleast 3 lesions
- patients of all ages
- patients of either gender

Exclusion criteria:

- Patients not willing to give consent.
- Patients on treatment for the past 2 months for molluscum contagiousm
- Pregnant and lactating females.
- Known HIV positive patients
- Patients on immunosuppressive therapy (corticosteroids, cyclosporine, methotrexate, azathioprine)
- Patients having fever or any signs of systemic infection
- Patients with secondary infection

Results

Table 1: *Age group wise distribution of study subjects*

Age group(in years)	Frequency	Percent
<10	65	35.3
10-20	62	33.7
21-30	44	23.9
31-40	6	3.3
>40	7	3.8
Total	184	100.0

The age group wise distribution of study subjects results revealed that total 184 subjects participated in the study out of them the highest frequency of subjects was in the <10 yearrs age group (65 subjects, 35.3%), followed by the 10-20 years age group (62 subjects, 33.7%). The least number of subjects were in the 31-40 age group (6 subjects, 3.3%) and >40 age group (7 subjects, 3.8%).

Table 2: *Site involved wise distribution of study subjects*

Site	Frequency	Percent
Arm	5	2.7
Arm, chest	2	1.0
Chest	5	2.7
Face	79	42.9
Face, chest & forearm	1	0.5
Face & neck	25	13.6
Face & forearm	4	2.3
Forearm	9	4.9
Genital	26	14.1
Legs	6	3.3
Neck	11	6.0
Neck & arm	10	5.4
Scalp	1	.5

The site involved wise distribution of study subjects results revealed that the face was the most common site involved (79 subjects, 42.9%), followed by the genital area (26 subjects, 14.1%) and face & neck (25 subjects, 13.6%). The least common sites were arm chest and scalp, each with 1 subject (0.5%).

Table 3: *Total Number of lesions among study subjects of two groups at various follow up intervals*

Time interval	Group 1 (GA 12)			Group 2 (KOH 10)			p value
	Mean	SD	Median	Mean	SD	Median	
Baseline	12.78	4.72	12.00	12.90	4.12	12.00	.419
3 weeks	10.52	4.60	9.50	10.84	4.05	10.00	.392
6 weeks	7.72	4.35	7.00	7.92	3.99	7.00	.588
12 weeks	4.28	3.33	4.00	4.10	3.03	4.00	.868

Table 9 shows the total number of lesions among study subjects of two groups at various follow up intervals results revealed no significant differences at baseline (p=0.419), 3 weeks (p=0.392), 6 weeks (p=0.588), and 12 weeks (p=0.868) between the two groups.

Table 4: *Clearance of total lesions*

Time interval	Clearance	Group 1 (GA 12)		Group 2 (KOH 10)	
		Frequency	Percent	Frequency	Percent
Baseline-3 weeks	<25%	74	78.7	71	78.9
	26-50%	20	21.3	19	21.1
Baseline-6 weeks	<25%	16	17.0	14	15.6
	26-50%	60	63.8	59	65.6
	51-75%	14	14.9	13	14.4
	76-90%	0	0	2	2.2
	>90%	4	4.3	2	2.2
Baseline-12 weeks	<25%	4	4.3	1	1.1
	26-50%	12	12.8	5	5.6
	51-75%	48	51.1	52	57.8
	76-90%	17	18.1	16	17.8
	>90%	13	13.8	16	17.8

The clearance of total lesions among study subjects of two groups at various follow up intervals results revealed that at baseline to 3 weeks, <25% clearance was the most common in both groups (78.7% in Group 1 and 78.9% in Group 2). baseline to 6 weeks, 26-50% clearance was the most common in both groups (63.8% in Group 1 and 65.6% in Group 2), By 12 weeks, 51-75% clearance was the most common in both groups (51.1% in Group 1 and 57.8% in Group 2).

Discussion

A total of 207 patients (inclusive of all ages, either gender with minimum of 3 lesions)were enrolled in present study out of which 23 patients dropped out during the course of study which can attributed to long follow up. Therefore the study was conducted on 184 patients of Molluscum Contagiosum presenting at Department of Dermatology, People's Hospital Bhopal with the aim to assess and compare the efficacy and tolerability of 10% KOH and glycolic acid 12% cream in treatment of Molluscum Contagiosum.

The clearance of MC lesions when assessed at final follow up in both the treatment groups revealed Complete clearance of MC in 13.8 % cases following Glycolic acid 12 % cream as compared to 17.8 % cases following 10 % KOH application showing no significant difference between 2 groups

(p<0.05) [9]. 82 % cases showed partial response following glycolic acid 12 % cream and 81.2% cases following 10 % KOH again not showing any significant difference between 2 groups.

However, when clearance of lesions of size >5 mm was compared in 2 groups from baseline to final visit 11.7 % patients showed complete clearance in glycolic acid group and 4.4 % patients showed complete clearance in 10 % KOH group showing a statistically significant difference (p<0.05). revealing that Glycolic acid 12% cream has better efficacy in clearing lesions of size >5 mm when compared to 10% KOH[10].
However when clearance of lesions of size <3 mm and 3-5 mm was compared no statistically significant difference was seen in between both group

To our knowledge, none of the previous studies have compared the efficacy of topical 10% KOH with topical Glycolic acid 12% cream in Molluscum contagiosum. Our study is unique to assess and compare the efficacy between two above mentioned treatment modalities. Almost many of previous studies have assessed the role of 10% KOH in Molluscum contagiosum but only few studies have assessed the role of topical Glycolic acid 12% cream in management Molluscum contagiosum[11].

In a study by Radhe S Nai(2022)[12] reported complete clearance in (56.66%) patients receiving 20 % glycolic acid solution .which was much higher than present study which can be explained by the fact they used a higher concentration of glycolic acid in treating patients and their patients included only children upto age of 15 years where as in present study patient of all ages was included.

Teixido C et al[13] demonstrated that potassium hydroxide effectively cleared lesions of molluscum contagiosum in 58.8% and 64.3% of patients when used at concentrations of 10% and 15%, respectively.

In a study by Nameer K. AI Sunday(2016)[14] reported complete clearance in 64% of patients receiving 10% KOH which was much higher when compared to present study this can be due to that fact in present study 10% KOH was applied three times a week. The result was achieved at the cost of high side effects experienced by 72% patients in their study in contrast to only 21.1% patients receiving 10% KOH experiencing side effects in present study.

Conclusion

To conclude our study found that both treatments were effective in reducing the number of lesions, but glycolic acid 12% cream (GA12) was more effective in clearing larger lesions (>5mm) at 6 and 12 weeks of treatment. However, no significant differences were observed in the total number of lesions between the two groups at any follow-up interval. The most common side effect was erythema, which was more common in the GA12 group. Burning was less common and did not differ significantly between the groups.

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