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Original Research Article

The covid-19 pandemic led to an upsurge of irritant contact hand dermatitis

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ABSTRACT

Background: The COVID-19 Pandemic has brought about a transition in hand hygiene practices since the disease has no cure. WHO recommends frequent hand washing for at least 20 seconds each time or the use of alcohol-based hand rubs to prevent infection. This change has led to a variety of skin changes over hands including dryness, redness, irritation, etc. Dermatitis is a medical term for skin inflammation (irritation). Contact dermatitis is an allergic or irritant reaction that causes a painful or itchy skin rash. Frequent use of hand hygiene products, particularly soaps, and other detergents, is one of the leading causes of irritant contact dermatitis among health workers in this Covid pandemic era.

Materials and Methods: To know the impact of change in hand hygiene practices after the start of the COVID-19 pandemic, an online survey was conducted using google forms. Participants included only medical students and professionals aged 18 and above till 35 years. Informed consent was obtained from all individual participants included in the study. Information was recorded and analyzed.

Results: The study included a total of 151 participants including medical students and professionals out of which 71 (47%) were male, 79(53%), and female, all aged between 18-35 years. 136 (90.1%) of the total participants agreed with an increase in hand hygiene practices brought about by the pandemic, using various means for the same including soap, alcohol-based gels, rubs, and wipes. 51 participants (33.8 %) noticed explicit changes in the skin of their hands after the switch in their respective hand hygiene practices.

Conclusions: This study highlights the changes in hand hygiene practices due to the pandemic and the prevalence of dermatitis due to the same in medical students and professionals. The study will highlight the awareness about the prevention of skin changes in hand due to frequent sanitation and the need to seek a dermatologist if and when required

1. Introduction

Contact dermatitis is an allergic reaction that causes a painful or itchy skin rash. As the name suggests, one gets contact dermatitis from coming into contact with an allergen (like poison ivy) or an irritant (like a chemical).[1] In December 2019 emerged the deadly virus from the streets of Wuhan which now stands for the cause of this ongoing pandemic. Currently, there is no specific treatment for the disease. Thus, WHO recommends frequent hand washing for at least 20 seconds each time or the use of alcohol-based hand rubs to prevent contamination.[2]

Hand hygiene with soap and water or by using an alcohol-based sanitizer is one of the most commonly used methods because it is cheap, effective, and simple against COVID-19.[3] However, precautions should be taken when frequently using sanitizers, as excessive use of these may cause side effects. For instance, oils secreted by the sebaceous glands of the skin have antiviral properties.[4] The regular use of alcohol-based hand sanitizers washes away these oils, leaving the skin dehydrated, which then in

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turn results in fissures and erosion, allowing easy access to pathogens and increasing the risk of microbial infection.[5] Frequent use of hand hygiene products, particularly soaps, and other detergents, is one of the leading causes of irritant contact dermatitis among health workers.[6]

These products can damage the skin by causing denaturation of stratum corneum proteins, changes in intercellular lipids, as well as decreased corneocyte cohesion and stratum corneum water-binding. As a result, they bring about changes in the skin flora of the hands and favor colonization. Damage is further aggravated by the use of hot water, failure to apply hand cream, and drying hands with poor-quality paper towels. Overuse of soaps and sanitizers leads to cumulative irritant contact dermatitis and redness of the skin, which mainly confides to the web spaces.[7]

2. Materials and Methods

After taking the approval from Institutional Ethics Committee, an online survey was conducted using google forms. Participants included only medical students and professionals aged 18 to 35 years. Informed consent was obtained from all individual participants included in the study.

The questionnaire included questions like the changes in hand hygiene practices in medical students and professionals due to the Covid – 19 pandemic which led to irritant contact dermatitis in them. It aimed to see the most common product being preferred for hand hygiene and determine its use in terms of frequency and duration which leads to irritant contact dermatitis.

3. Results

The study included a total of 151 participants including medical students and professionals out of which 71 (47%) were male, 79(53%), and female, all aged between 18-35 years.

136 (90.1%) of the total participants agreed with an increase in hand hygiene practices brought about by the pandemic, using various means for the same including soap, alcohol-based gels, rubs, and wipes.Chart 1

It was found that alcohol-based liquid rubs were the most commonly used followed by soap, alcohol-based gels, and then wipes.Graph 1

In the meantime, people indulged in hand washing ranging from 10-20 seconds for 86 participants (57%). around 31(20.5%) participants engaged for >20 seconds followed by the rest for <10 seconds.Chart 2

Most of the participants did not have a pre-existing skin condition, particularly in the hands. About < 5% of the members had dry hands as previous complaints were limited to their hands.

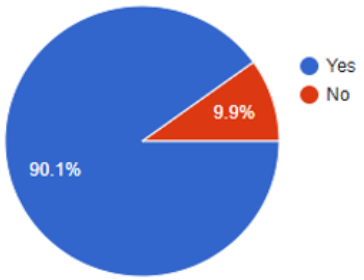
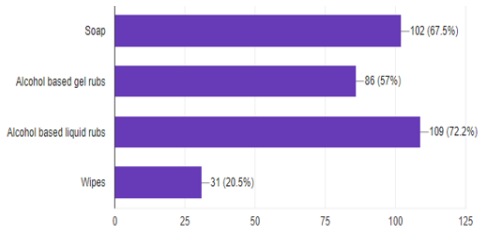


Chart 1: Number of participants reporting change in hand hygiene practices



Graph 1: Means used for sanitization of hands

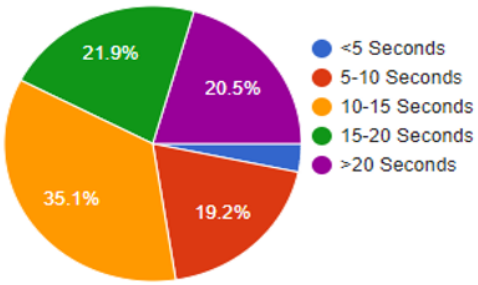


Chart 2: Average time spent during hand washing

Out of all the participants, 33.8 % (51) noticed explicit changes in the skin of their hands after the switch in their respective hand hygiene practices. 16.6% (25) of the candidates had the view that perhaps skin changes were about after the shift of their hand hygiene practice.Chart 3

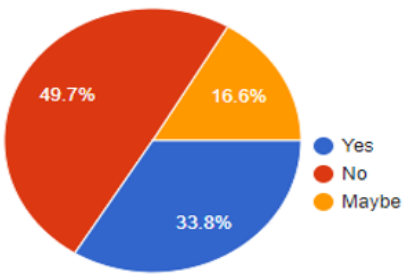
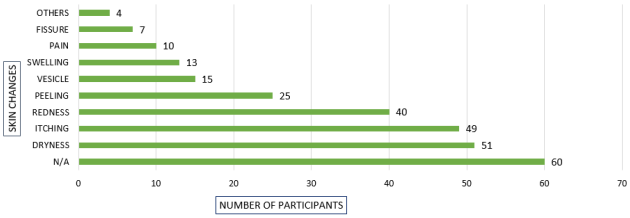


Chart 3: No. of participants noticing changes in hands

Of the total number of respondents, 3/5th reported changes in the skin of their hands like dryness 33.8%, itching 32.5%, redness 26.5% peeling 16.6%, vesicle 9.9%, and swelling 8.6 %.Graph 2



Graph 2: Changes noticed in skin of hands

The candidates reporting changes reported that the skin changes lasted for about 1 week 44.4 % while persisted for more than a week in only 7.3%.Chart 4

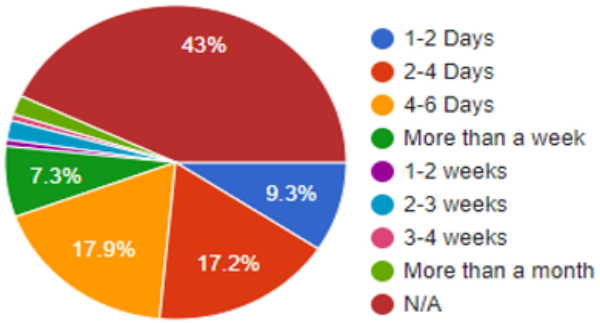


Chart 4: Duration of skin changes observed

The changes noticed were reported to have been subsided by themselves in 45% of the group while in the other 45.7%, they did not resolve by themselves.Chart 5

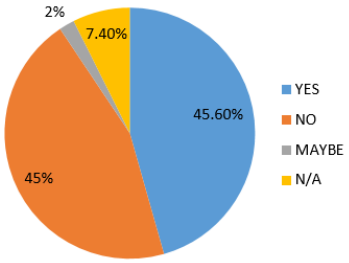


Chart 5: Self resolution of skin changes following stoppage of additional cleansing

Out of the 45.7 % where a resolution was not seen spontaneously only 23.2%, i.e., roughly half of them did seek the help of a dermatologist.Chart 6

After having experienced symptoms of irritant contact hand dermatitis led by a diversion in the hand hygiene practices promoted by the pandemic 61%, around 2/3rd,

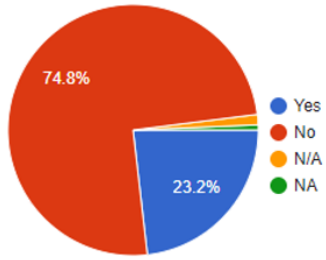


Chart 6:

of the respondents, engaged in preventive measures for the same.

The measures adopted included using a moisturizer after hand washing (32.5%), using a milder soap (14.6%), using gloves (9.9%), and engaging in less hand washing (4%).Chart 7

Chart 7: No. of participants requiring Dermatologist consultation

After having experienced symptoms of irritant contact hand dermatitis led by a diversion in the hand hygiene practices promoted by the pandemic 61% of the respondents, engaged in preventive measures for the same.

The measures adopted included using a moisturizer after hand washing (32.5%), using a milder soap (14.6%), using gloves (9.9%), and engaging in less hand washing (4%).Chart 8

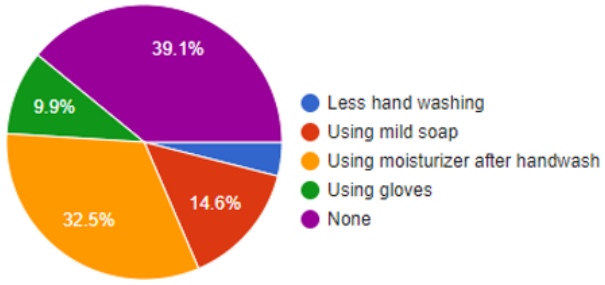


Chart 8: Self-measures taken for minimizing hand dermatitis

4. Discussion

This online Google form questionnaire-based study was conducted to see the impact of hand hygiene practices on the skin of the participants, which was a repercussion of the shift in hand hygiene practices in covid. In March 2020, they declared covid-19 a global pandemic. Various developments were bought about in this arena for the prevention and treatment of the disease. WHO and CDC recommended that since precise treatment of the viral disease does not prevail – using face masks, practicing social distancing, and encouraging frequent and proper hand washing will prevent the spread. The worldwide awareness of hand hygiene has bought about a shift in the daily hand hygiene routine, the increased frequency of which has led to changes in the skin on the hand.

Dermatitis is an inflammatory response of the skin; here brought about by alcohol-based sanitizers and soaps which is manifested as redness, dryness, itching, peeling, vesicles, swelling, fissures, and ulcers. It is seen in our study that frequent hand washing altered skin barriers causing changes. About 90% of the participants reported having increased their hand washing practices by 5- 20 times a day in 73.5% of individuals. Amongst them, 33.8% are sure that this has led to changes in their skin while 16.6% propose that maybe the skin change was bought to their hand hygiene practice, while only 49% reported that no skin changes could be observed. More commonly dryness, redness, and itching were observed, but in severe cases, vesicles, swelling, and fissures also have been observed.

In 45.7% of individuals, the skin changes lasted from 1 to 2 weeks. Wherein 45% of cases resolved spontaneously while 45.7% did not resolve themselves. About $\frac{1}{2}$ of the respondents consulted a dermatologist for the same. After an episode of this, 61%, i.e., 2/3rd of the members started adopting preventive measures including moisturizer use after hand washing, using gloves, and using milder soaps.

A population-based study was done in Saudi to study the Prevalence and Determinants of Hand and Face Dermatitis during the COVID-19 Pandemic out of the total number of respondents, 34.8% (821 individuals) reported skin changes or symptoms during COVID-19, of whom 83.2% reported skin dryness, 54.2% reported changes in the texture, 45.4% reported scaling, 39.6% reported itchiness, 28.4% reported changes in skin color, 28.1% reported redness, and 17.4% reported pain/ burning, while 7.6% reported skin ulcers. [8,9]

Whereas in our study 51% of individuals believed that the change in their skin texture was brought about by the increased use of hand hygiene practices.

A study was done that aimed to explore the prevalence of and possible risk factors for hand eczema after the introduction of new hand hygiene habits to protect against COVID-19 cross-transmission. The survey was conducted among healthcare workers (HCWs) and non-HCW populations in Thailand. Where a total of 805 participants participated. The prevalence of hand eczema in the study population was 20.87%. The study found that HCWs had a higher prevalence of hand eczema than non-HCW participants. [10]

Our study mainly focuses on the HCW group displayed that skin changes in 34% were reportedly brought about by the change of hand hygiene practice while 17% believed that perhaps increased use of soap and alcohol products may have led to skin changes in their hands.

Another study from Milan reported that during the period 9 March - 4 May 2020, there were 24 new cases of hand eczema in the general population related to the use of alcohol-based sanitizers. [11]

While in our study the prevalence reported explicitly for skin changes due to drift from daily hand hygiene practices was 34 % approximately.

5. Conclusion

This study highlights the changes brought due to pandemics and the prevalence of dermatitis due to the same in medical students and professionals. The study will highlight the awareness about the prevention of skin changes in hand due to frequent sanitation and the need to seek a dermatologist if and when required

6. Conflict of Interest

None.

7. Source of Funding

None.

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