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POST-COVID DERMATITIS: EMERGING TRENDS IN CONTACT DERMATITIS IN WESTERN INDIA

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ABSTRACT **Introduction:** Contact dermatitis is an inflammatory condition of the skin after exposure to any foreign/exogenous substance and it can be classified as irritant and allergic contact dermatitis (ICD and ACD). Due to the recent COVID-19 pandemic, several skin conditions have emerged due to the preventive measures adopted by both health care workers and the general population against SARS-CoV-2. **Materials and Methods:** The study was a hospital based observational study at Rajasthan Hospital, KK tower, and JNU Hospital, Jaipur, Rajasthan. The duration of the study was from 2021 to 2023. The study included patients of both genders aged 15 and above, who consented to participate and had a history of allergic contact dermatitis. Exclusion criteria were non-consent. **Results:** Out of 288 patients, 125 were male, and 163 were female. The highest number of patients (35 each) belonged to the 24-33 and 34-43 age groups, followed by 23 patients aged 54-63 years, and 22 patients aged 64-73 years. The most common allergens identified were Fragrance mix in 132 patients (46.9%), Parthenium in 118 patients (41.0%), and Paraphenylenediamine in 100 patients (34.7%). **Conclusion:** A higher incidence of patch test positivity was observed in females, with fragrance mix being the most common allergen.

KEYWORDS : Patch Test, Allergic Contact Dermatitis, Covid 19

INTRODUCTION

Contact dermatitis is an inflammatory skin condition triggered by exposure to foreign substances, classified as irritant or allergic contact dermatitis (ICD and ACD)[1]. The COVID-19 pandemic has led to an increase in various skin conditions, largely due to the preventive measures adopted, such as wearing personal protective equipment (PPE), frequent hand-washing, and surface disinfection. These measures have heightened the risk of developing both ICD and ACD[2].

Aims and Objectives

This study aims to identify the most common patterns of allergic contact dermatitis among patients presenting with hand eczema and a positive history of allergic contact dermatitis.

MATERIAL AND METHODS

The study was a hospital based observational study at Rajasthan Hospital, KK tower and JNU Hospital, Jaipur, Rajasthan. The duration of the study was from 2021 to 2023. The study included patients of both genders aged 15 and above, who consented to participate and had a history of allergic contact dermatitis. Exclusion criteria were non-consent. Demographic data, including name and age, were recorded. The Indian Battery Series patch test was applied to the patients' backs, with readings taken after 72 and 96 hours.

RESULTS

Out of 288 patients, 125 were male, and 163 were female. The highest number of patients (35 each) belonged to the 24-33 and 34-43 age groups, followed by 23 patients aged 54-63 years, and 22 patients aged 64-73 years.

Number in percentage of positive patients with different antigens are listed in Table 1

Table 1 Results Of Patch Test Allergens

Name	No of PTs 288	% Yes	Male	%	Female	%
Fragrance Mix	135	46.875	57	45%	78	47.85%
Parthenium	118	40.972	65	52%	53	32.51%
Paraphenylenediamine Hair Dyes	100	34.722	48	38%	52	31.90%
Benzocaine	84	29.16	43	34%	42	25.76%
Colophony	81	28.125	30	24%	51	31.28%
Nickel Sulphate	75	26.04	24	19%	51	31.28%
Neomycin Sulphate	74	25.69	30	24%	44	26.99%
Black Rubber mix	70	24.3	32	26%	38	23.31%
Thiuram Mix	62	21.53	36	28%	27	16.56%
Formaldehyde	61	21.18	22	17%	39	23.9%
Potassium Bichromate	58	20.14	37	29%	21	12.88%
Epoxy resins	58	20.14	32	26%	26	15.95%
Cobalt Sulphate	58	20.14	29	23%	30	18.40%
Chlorocresol	56	19.44	25	20%	31	19.01%
Nitrofurozon	54	18.75	31	25%	23	14.11%
Peru balsam	48	16.67	24	19%	24	14.7%
Mercaptobenzothiazole	42	14.58	22	18%	20	12.27%
Parabens Mix	41	14.24	21	16%	20	12.27%
Wool Alcohol	36	12.5	23	18%	13	7.9%
VASELINE	9	3.125	5	4%	4	2.4%

The most common allergens identified were:
Fragrance mix: Positive in 132 patients (46.9%), - Parthenium: Positive in 118 patients (41.0%), - Paraphenylenediamine: Positive in 100 patients (34.7%)
Benzocaine: Positive in 85 patients (29.2%), - Colophony: Positive in 81 patients (28.1%),

The least common allergens were:
Parabens mix: Positive in 41 patients (14.2%), - Wool alcohol: Positive in 36 patients (12.5%), - Vaseline: Positive in 9 patients (3.1%)

DISCUSSION

Contact dermatitis is inflammation of the skin induced by chemicals when they come in contact with the skin. In the acute phase contact dermatitis has the appearance of erythema, vesiculation (blister formation), weeping, and crusting. In the chronic phase, contact dermatitis demonstrates scaling, fissuring (cracking), and lichenification (accentuated skin lines)[3]

Patch testing (PT) is the gold standard for diagnosing ACD[4]. Patch testing is usually performed on the back. The outer aspect of the upper arms is an alternative. Potent topical corticosteroids applied to the test site or oral corticosteroids ideally should be discontinued at least two weeks before patch testing[5].

Different batteries of Patch testing are used. The Brazilian Standard Battery (FDA Allergenic - Rio de Janeiro, Brazil) consists of 30 substances; of these, only formaldehyde is formulated in an aqueous vehicle. It was studied and standardized by the Brazilian Study Group of Contact Dermatitis (BSGCD), with results published in 2000[6] Since then, it has been used as a reference in many studies done in Brazil[7]

In our study, there was a female preponderance with 163 females (56.6%) Most of patients belonged to age groups 24-33 and 34-43 years, and least belonged to 74-85 years. Majority of the patients showed a positive reaction to Fragrance mix, followed by parthenium, paraphenylenediamine, benzocaine, and colophony. Least number of patients showed positive reaction to parabens mix, wool alcohol, and Vaseline.

In a study by Narendra et al[8], the most frequent sensitizers observed

were nickel sulphate-12 (15%), potassium dichromate-11(13.75%), neomycin sulphate-10 (12.5%), cobalt chloride and colophony-7(8.75%) each while benzocaine, formaldehyde, PEG-400, wool alcohol, ethylenediamine chloride, black rubber mix, 4TBPF resin, and quarternium 15 showed reactions.

In a study by Nijhawan et al[9], forty-three (86%) patients gave positive reactions to potassium dichromate ,12 (24%) to cobalt chloride, and 2 (4%) to nickel sulfate.

In a study by Mansoorali et al[10], 43 patients (86%) showed positive reaction to potassium dichromate.

In a study by Bajaj et al[11], out of the allergens that were tested in all the patients, positivity to nickel was the commonest (12.9%), followed by potassium dichromate (11.1%) neomycin (7%), mercaptobenzthiazole (6.6%), nitrofurazone (6%), colophony (5.7%), fragrance mix (5.5%) and cobalt chloride (5.4%). However, parthenium was the commonest allergen based on the proportion of patients tested with it (14.5%)

In a study by Handa et al[12], readings were done at 48 hrs and 96 hrs. Among patients with patch test positivity at 48 h, fragrance mix was the commonest allergen (7 of 24 patients, 29.2%) while potassium dichromate, cobalt chloride hexahydrate, and nickel positivity were observed in five patients each. Similarly, at 96 h, fragrance mix, and cobalt chloride hexahydrate were positive in seven patients each, and potassium dichromate and nickel positivity were seen in five patients each .

In a study by Sahu et al[13] Potassium dichromate (PDC) was found to be the most common allergen (30.43%) followed by parthenium (26.08%), para-phenylenediamine (PPD) (21.73%), nickel sulfate (18.84%), chlorocresol (15.94%), black rubber (14.49%), cobalt sulfate (13.04%), and wool alcohols (7.24%) respectively.

In a study by Manjunath[14], The common sensitizers were phenylenediamine(22%), fragrance mix(18%), parthenium hysterophorus (15%), Balsam of Peru (12%), potassium dichromate (6%), Thiuram mix(6%), Nickel sulfate (6%), Colophony and Epoxy resin (4%), wool alcohol(1%).

In a study by Bhachech et al[15], among the allergens, parthenium was the most common allergen (27%) subsequently potassium dichromate (18%) and paraphenylenediamine (11%) were common to give positive patch test results

CONCLUSION

A higher incidence of patch test positivity was observed in females, with fragrance mix being the most common allergen. The increased use of gloves and sanitizers during the COVID-19 pandemic may have contributed to the higher prevalence of allergic reactions, particularly to thiuram mix.

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