



Methylchloroisothiazolinone and methylisothiazolinone contact allergy: A retrospective cohort study from a tertiary dermatology clinic in Turkey

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Isothiazolinones, that is, methylchloroisothiazolinone (MCI) and methylisothiazolinone (MI), are widely used preservatives in cosmetic, industrial and household products, owing to their strong biocidal effects.¹ Following an epidemic of contact allergy to MCI/MI (Kathon CG) and subsequent regulatory measures regarding the use of MCI/MI, the use of MI as a monopreservative has increased. The reports of contact allergy to MI during the mid-2000s led to further limitations on the use of MI in cosmetic products, and MI was added to the European baseline series in 2015.^{2–5} Despite the vast amount of data from different countries, there are still, to our knowledge, no data on MCI and MI contact allergy in Turkey. Thus, the aim of the present study was to investigate the frequency, and demographic and clinical features, of MCI/MI and MI contact allergy in a tertiary dermatology centre in Turkey.

PATIENTS AND METHODS

A retrospective study was performed. Medical records of all patients who had been tested with the European baseline series in our contact dermatitis outpatient clinic between January 2016 and June 2018 were reviewed. Patients were tested with allergens (MCI/MI 0.02% aq. and MI 0.2% aq.) and IQ Ultra chambers obtained from

Chemotechnique Diagnostics (Vellinge, Sweden). Readings were performed on day (D) 2 and D4, according to ESCD guidelines.⁶ The study protocol was reviewed and approved by our institution's ethics committee.

RESULTS

A total of 324 patients were patch tested during the study period. Of them, 29 (8.9%) had positive reactions to MCI/MI and/or MI. The rate of positive reactions to MCI/MI and MI showed a decrease during the

TABLE 1 The frequency of methylchloroisothiazolinone (MCI)/methylisothiazolinone (MI) and MI contact allergy and the change over the years

Years	2016 n (%)	2017 n (%)	2018 n (%)	Total n (%)
Total number of patients	128	108	89	324
MCI/MI positive	8 (6.25)	7 (6.48)	5 (5.61)	20 (6.17)
MI positive	12 (9.37)	9 (8.33)	5 (5.61)	26 (8.02)
Both positive	7 (5.46)	6 (5.55)	4 (4.49)	17 (5.24)
MCI/MI and/or MI positive	13 (10.15)	10 (9.25)	6 (6.74)	29 (8.95)

TABLE 2 The MOAHLFA index of the patients with methylchloroisothiazolinone/methylisothiazolinone (MI) and/or MI contact sensitization (n = 29)

Characteristics	n (%)
Male	23 (79.3)
Occupational	14 (48.3)
Atopy	5 (17.2)
Hand	26 (89.7)
Leg	6 (20.7)
Face	6 (20.7)
Age (≥40 years)	12 (41.4)

study period. The number of positive reactions and the change during the study period are shown in Table 1.

The mean age of the patients with MCI/MI and MI contact sensitization was 38.7 ± 12.1 years (11–67 years). The mean duration of the complaints was 21.7 months. The MOAHLFA index of these patients is shown in Table 2. The most common clinical presentation was erythematous scaly patches (55.2%), followed by vesicular (24.1%) and hyperkeratotic (20.7%) lesions.

The positive reactions were clinically relevant in 19 (65.5%) of the patients. A source of exposure could be identified for 20 (69%) patients. The sources of exposure were paints (n = 9, either in workers in paint production or in painters), rinse-off cosmetics (n = 7), metal-cutting fluids (n = 5), and wet wipes (n = 1).

DISCUSSION

The results of the present study show a high prevalence of MCI/MI and MI contact allergy in Turkey, similarly to the existing reports from Europe.⁷ The previous studies from Turkey have reported a sensitization rate of ≤1% for MCI/MI,^{8–11} but, to the best of our knowledge, there are no data on MI sensitization rates. In accordance with the recent reports, we also observed a decrease in the prevalence of MCI/MI and MI contact allergy from 2016 to 2018. This might be explained by the regulations implemented in Turkey according to the European Commission cosmetics directive. According to these regulations, the maximum concentrations of MCI/MI allowed in rinse-off products and MI allowed in cosmetics are 0.0015% and 0.01%, respectively.¹² Interestingly, the most frequent sources of exposure in our patients were paints, which might be attributable to either the close proximity of our centre to industrial areas or poor workplace safety practices.

CONCLUSION

The current study was limited by the retrospective design, relatively small sample size, and lack of follow-up information. Nevertheless, this is the first report from Turkey on MI contact allergy, and shows a high prevalence of sensitization, particularly in patients exposed to

paints and metal-cutting fluids. In the future, prospective, multicentre studies are highly warranted to investigate the risk factors and the effects of regulations in different countries.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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