Relevant Contact Allergy to Benzisothiazolinone found in a Personal Care Product

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OBJECTIVES

- To describe the first reported case of allergic contact dermatitis resulting from benzisothiazolinone (BIT) in a personal care product (PCP)

CASE

- 35-year-old female with 3-month history of bilateral hand dermatitis
- Symptoms started after a recent cross-country move to Minnesota
- Topical corticosteroids, crisaborole, oral cephalexin, and intramuscular triamcinolone were ineffective

PATCH TESTING

- 2019-2020 NACDG Screening Series
- Corticosteroids
- Emulsifiers
- Benzisothiazolinone (BIT)
- Nickel (2.5, 5%)
- Bronopol
- MCI/MI (x2)
- MI (x2)
- OIT

RESULTS

<table>
<thead>
<tr>
<th>Allergen</th>
<th>Reaction</th>
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<tbody>
<tr>
<td>BIT</td>
<td>++</td>
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<tr>
<td>Nickel (2.5, 5%)</td>
<td>++</td>
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<tr>
<td>Bronopol</td>
<td>+/-</td>
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<td>MCI/MI (x2)</td>
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Figure 1. The chemical structure of BIT

Figure 2. Patient’s hands show diffuse erythema, sheet-like desquamation, and websspace involvement

Figure 3. Final patch-test reading is notable for a strong (++) reaction to BIT

Figure 4. Puracy Lavender & Vanilla Hand Soap, purchased shortly after the patient moved to Minnesota, lists BIT as an ingredient

DISCUSSION

- Products designed for use on human skin are regulated differently from those not designed for use on human skin
- BIT is a biocide and fungicide banned for use in PCPs in Europe, but remains in US with no prohibitive regulations\textsuperscript{1}
- While other isothiazolinones (MCI/MI) are routinely found in hand soaps, BIT has historically been used in products not designed for human skin such as paints, varnishes, cleaners, and detergents\textsuperscript{1,2}
- Per the US Food and Drug Administration’s Voluntary Cosmetics Registration Program, BIT has not been reported in PCPs\textsuperscript{3}
- Case reports document allergy to BIT in CPAP wash, PVC gloves, and glues\textsuperscript{4,5}
- Previous analyses find all-purpose cleaners as the most common source of exposure; PCPs were not reported\textsuperscript{4,5}
- While our patient was exposed to BIT in her household cleaners, daily exposure to BIT in her hand soap is very relevant
- This case underscores the importance of investigating PCPs for identified allergens, even when not anticipated
- Clinicians should be aware of BIT in PCPs

REFERENCES

3. Personal communication with Don Belsito, MD. October 6th, 2019