Occupational Airborne Contact Dermatitis Caused by Omeprazole

Airborne contact dermatitis (ACD) is a frequent condition, and there has been increasing recognition of the occupational origin of airborne contact dermatitis. ACD caused by drugs is often occupation-related and occurs mainly in healthcare workers who use the drugs for therapeutic aims and employees of pharmaceutical industries involved in the production of the drugs (1). Omeprazole (OM) is a proton pump inhibitor from the benzimidazole group used for treatment of gastric acid-related disorders (2).

A 52-years-old female chemist had been working in a pharmaceutical company for 20 years. When working in the laboratory, she wore protective latex-free gloves, a mask, and glasses. Skin lesions started 6 months after she had started working in an analytic laboratory with omeprazole and azithromycin. Whenever omeprazole was being manufactured, the patient presented with eczema with scaling on the eyelids, face, and neck, with the hands subsequently being affected as well. The patient's skin lesions cleared during holidays and sick leave and worsened when she was working in omeprazole production. Topical corticosteroids were applied, which resulted in temporally regression of skin symptoms. We performed patch tests with the baseline series (Chemotechnique Diagnostics, Vellinge, Sweden, and Imunološki zavod, Zagreb, Croatia) to materials in the patient's workplace and a lymphocyte transformation test (LTT) to omeprazole. All tests were negative, except the patch test to OM which showed a positive reaction (+) to 0.1% OM in saline solution on day (D) 2 and D3 and positive reaction (+) to 0.5% OM in saline solution on D2 and ++ on D3 (Figure 1).

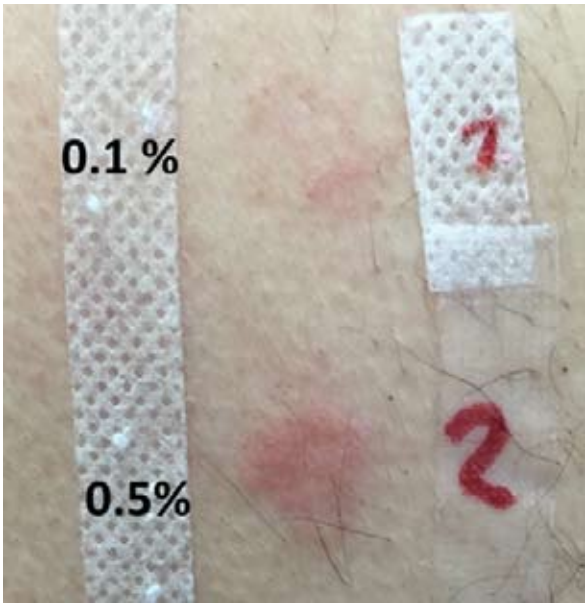

Figure 1. Day 3 patch test positive to 0.1% OM in saline solution (+) and 0.5% OM in saline solution (++).

Hausen *et al*. performed experimental animal studies in which they concluded that OM and other proton pump inhibitors constitute a high-sensitizing-potential group (3). However, when administrated, orally or parenterally, the frequency of contact sensitization was low (3). Although direct contact with the skin was not always present, distribution of the dust containing OM through the air and deposition on exposed areas may result in ACD. The first two occupational cases of ACD caused by OM among pharmaceutical workers were reported in 1986 (4). Since then, ACD caused by OM in an occupational setting has been reported occasionally (2,4-6). Other proton pump inhibitors such as lansoprazole and pantoprazole have less pronounced potential to cause ACD (7,8). Ghatan *et al*. conducted a study in 2014 in an occupational setting with 97 workers and reported 31 positive LTT tests and 28 positive patch tests; these results confirm a high risk of sensitization to OM from occupational exposure (6). Although direct contact with the skin is not always present, it is important to bear in mind that distribution of dust containing OM through the air and deposition on exposed areas may result in ACD.

References:

1. Swinnen I, Goossens A. An update on airborne contact dermatitis: 2007–2011. Contact Dermatitis. 2013;68:232-8.

2. Conde-Salazar L, Blancas-Espinosa R, Pérez-Hortet C. Occupational airborne contact dermatitis from omeprazole. Contact Dermatitis. 2007:56:44-6.
3. Hausen BM, Lücke R, Rothe E, Erdogan A, Rinder H. Sensitizing capacity of azole derivatives: Part III. Investigations with anthelmintics, antimycotics, fungicides, antithyroid compounds, and proton pump inhibitors. Am J Contact Dermatitis. 2000:11:80-8.
4. Meding B. Contact allergy to omeprazole. Contact Dermatitis 1986:15:36.
5. Sanz-Gallen P, Nogué S, Herrera-Mozo I, Delclos GL, Valero A. Occupational contact allergy to omeprazole and fluoxetine. Contact Dermatitis. 2011;65:118-9.
6. Ghatan PH, Marcusson-Ståhl M, Matura M, Björkheden C, Lundborg P, Cederbrant K. Sensitization to omeprazole in the occupational setting. Contact Dermatitis. 2014;71:371-5.
7. Neumark M, Ingber A, Levin M, Slodownik D. Occupational airborne contact dermatitis caused by pantoprazole. Contact Dermatitis 2010;64:60-1.
8. Chang YS. Hypersensitivity reactions to proton pumps inhibitors. Curr Opin Allergy Clin Immunol. 2012;12:348-53.

Ružica Jurakić Tončić[1], Anamaria Balić[1], Borna Pavičić[1], Kristina Žužul[2], Mikela Petković[1], Lucija Bartolić[3], Suzana Ljubojević Hadžavdić[1]

[1]Department of Dermatology and Venereology, University Hospital Center Zagreb, School of Medicine University of Zagreb, Zagreb, Croatia

[2]Private dermatovenerological clinic "Dr. Nada Videnić", Karlovac, Croatia

[3]Private dermatovenerology and venereology practice Dr. Kedmenec Bartolić, Čakovec, Croatia

Corresponding author:

Ružica Jurakić Tončić, MD

Department of Dermatology and Venereology
University Hospital Center Zagreb

School of Medicine University of Zagreb, Croatia

Šalata 4

10000 Zagreb

Croatia

rjtoncic@gmail.com

Received: January 23, 2018

Accepted: August 10, 2019