



Chemotherapy Medicine-related Rare Toxic Reaction: Palmoplantar Erythrodysesthesia (Hand-foot Syndrome)

Zeynep Şengül EMEKSİZ, Serap ÖZMEN

Division of Pediatric Allergy and Immunology, Department of Pediatrics, Dr. Sami Ulus Maternity and Children Training and Research Hospital, Ankara-Turkey

Dear Editor,

Palmoplantar erythrodysesthesia, also known as hand-foot syndrome (HFS), is one of the dermatological side effects of chemotherapy treatments. However indistinguishable lesions from the allergic reaction may lead to a change of chemotherapy or discontinuation of planned treatment. Considering the literature, the child data of this toxic reaction are quite limited.[1]

A 9-year-old girl, who was following up by the oncology department due to high-risk acute lymphoblastic leukemia, was consulted with a diagnosis of drug allergy due to a rash on her hands. It was revealed that the patient developed redness and burning sensation after the chemotherapy course (vincristine, L-asparaginase, and doxorubicin) that she received 2 days before. Apart from this, the patient who did not describe any symptoms in physical examination, an itchy, symmetrical, markedly hyperemic rash on both palms and between the fingers was detected (Fig. 1). With these clinical findings, the patient was diagnosed with HFS which was primarily attributed to the first doxorubicin treatment, since she had been receiving vincristine and L-asparaginase treatment without any problems. The family was educated and informed, and given moisturizing advice. Treatment of the patient was continued without changing the chemotherapy protocol defined by the oncology department. With this approach, the patient completed the course of treatment with no increase in rashes.

HFS is a toxic reaction that starts as an erythematous rash, which can be seen especially on the palms and soles of the feet and is accompanied by pain,



Fig. 1. An itchy, symmetrical, well-confined hyperemic rash in the palm of the patient between the fingers.

burning, and numbness. In rare cases, erythematous rashes can turn into vesicular and bullous form.[2] Although the exact pathogenesis of HFS is unknown, it is thought that after intravenous administration of cytotoxic agents, it excreted from the sweat glands and spread to the dermal surface, and local toxic effects on epidermal keratinocytes develop symptoms. The fact that the palms and soles where epidermal basal cells divide rapidly are the areas which most vulnerable against cytotoxic and the high density of eccrine sweat glands may explain why these areas are affected most. [3] It can be seen with chemotherapy drugs such as doxorubicin, 5-fluorouracil, capecitabine, vinorelbine,

Received: October 10, 2021
Accepted: November 24, 2021
Online: December 08, 2021

Accessible online at:
www.onkder.org

OPEN ACCESS This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.



Dr. Zeynep Şengül EMEKSİZ
Dr. Sami Ulus Doğumevi ve Çocuk Eğitim ve Araştırma Hastanesi,
Çocuk Sağlığı ve Hastalıkları Anabilim Dalı,
Çocuk Alerji ve İmmünoloji Bilim Dalı,
Ankara-Turkey
E-mail: drzeynep83@hotmail.com

methotrexate, gemcitabine, and cytarabine; doxorubicin and capecitabine are also frequently reported.[4] The diagnosis was made clinically. However, a biopsy may be useful in cases where the differential diagnosis cannot be made. Histological findings are not specific but compatible with the toxic reaction.[1] Treatment is mostly supportive. Cold application, elevation, moisturizers, pain relievers, and topical steroids provide symptomatic benefits in most patients.

In cases with no response, it may be considered to reduce the dose, stop the treatment, or continue with alternative medication.[5] This rare reaction must be recognized early by clinicians, as it is not life threatening, but negatively affects the quality of life. Thus, unnecessary examination with the diagnosis of drug allergy and disruption of the continuity of the treatment due to drug and dose changes can be prevented, especially in cancer treatments that are of vital importance. Although information about child data is limited in the literature, it should be kept in mind that this age group may also be affected.

References

1. Demircioğlu F, Oren H, Yılmaz S, Arslansoyu S, Eren S, Irken G, et al. Chemotherapy-induced acral erythema in a pediatric patient with acute monoblastic leukemia. *Pediatr Hematol Oncol* 2008;25(3):211–5.
2. Nikolaou V, Syrigos K, Saif MW. Incidence and implications of chemotherapy related hand-foot syndrome. *Expert Opin Drug Saf* 2016;15(12):1625–33.
3. Jung S, Sehouli J, Patzelt A, Lademann J. Influence of mechanical stress on palmoplantar erythrodysesthesia—a case report. *Oncol Res Treat* 2015;38(1–2):42–4.
4. Tunio MA, AlAsiri M, Durrani SK. Hand foot syndrome secondary to low dose docetaxel. *Int J Health Sci (Qassim)* 2015;9(3):335–7.
5. Chidharla, A, Talavera, F, Kasi, A. Chemotherapy acral erythema (palmar-plantar erythrodysesthesia, palmoplantar erythrodysesthesia, hand-foot syndrome). In: *Stat Pearls*. Treasure Island, FL: Stat Pearls Publishing; 2021.