



Positive Quality Intervention: Medication Induced Hand-Foot Syndrome

Description: The goal of this PQI is to discuss prevention and management of Hand-Foot Syndrome.

Background: Palmar-plantar erythrodysesthesia, also known as hand-foot syndrome (HFS) is a widely recognized dose-limiting toxicity of certain chemotherapy agents. A comprehensive list can be found in the supplemental information section. Typically, HFS occurs within the *first six weeks* of starting targeted therapy and after two months for chemotherapy. Preventative measures should be taken to prevent HFS. Effective education and preventative measures, like the use of 10-20% urea cream, has been shown to reduce the severity and time to developing HFS.

PQI Process: Upon receipt of a new prescription known to cause HFS (*see supplemental section*)

- Provide urea cream¹⁻³
- Set reminder in the EMR to follow up with the patient within seven days of initial dispense and with every refill
 - Inform provider if symptoms develop and document in the EMR
 - Topical and systemic pain relievers may be needed for the treatment of HFS related pain
- Grading of HFS

Grade	Symptoms ³	Grading for patients of color on capecitabine
1	Minimal skin changes or dermatitis without pain.	Hyperpigmentation of palms/soles.
2	Peeling, blisters, bleeding, fissures, swelling, hyperkeratosis, pain, limiting instrumental ADL.	Thickening of skin of palms/soles, with pain and loss of function.
3	Severe skin changes (peeling, blisters, bleeding, fissures, swelling, hyperkeratosis) with pain. Limiting self-care ADL.	Ulceration, dermatitis, or scaling.

- Treatment hold or dose modification may be needed based on symptoms

Patient-Centered Activities:

- Provide [Oral Chemotherapy Education](#) (OCE) Supplemental Sheet
- Educate patient on signs and symptoms of HFS¹⁻³
 - Numbness
 - Tingling
 - Burning
 - Itching
 - Redness
 - Swelling
 - Tenderness
 - Rash
 - Cracked Skin
 - Flaking Skin
 - Blistered Skin
 - Sores
- Counsel patient on non-medical interventional strategies including
 - Limit use of hot water and sources of heat to hands and feet
 - Use of lotion within three minutes of bathing
 - Avoid activities that cause excessive rubbing to hands and feet (eg., jogging)
 - Use of cotton gloves or socks at bedtime or throughout the day
 - Increased water intake and limiting diuretics and dehydrating agents (eg., alcohol, caffeine)

IMPORTANT NOTICE: NCODA has developed this Positive Quality Intervention platform. This platform is intended as an educational aid, does not provide individual medical advice, and does not substitute for the advice of a qualified healthcare professional. This platform does not cover all existing information related to the possible uses, directions, doses, precautions, warning, interactions, adverse effects, or risks associated with the medication. The materials contained in this platform do not constitute or imply endorsement, recommendation, or favoring of this medication by NCODA. NCODA does not ensure the accuracy of the information presented and assumes no liability relating to its accuracy. All decisions related to taking this medication should be made with the guidance and under the direction of a qualified healthcare professional. It is the individual's sole responsibility to seek guidance from a qualified healthcare professional. *Updated 9.22.23*

- Importance of good nail care
- Importance of wearing shoes/avoiding going barefoot
- Provide urea cream and counsel on importance of use
- Ensure patient knows when and who to call regarding onset of HFS symptoms

References:

1. Hofheinz RD, Gencer D, Schulz H, et al. Mapisal Versus Urea Cream as Prophylaxis for Capecitabine-Associated Hand-Foot Syndrome: A Randomized Phase III Trial of the AIO Quality of Life Working Group. *J Clin Oncol.* 2015;33(22):2444-2449. doi:10.1200/JCO.2014.60.4587.
2. Kwakman, J. J. M., Elshot, Y. S., Punt, C. J. A., & Koopman, M. (2020, May 13). Management of cytotoxic chemotherapy-induced hand-foot syndrome. *Oncology reviews.* Retrieved February 23, 2023, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7232019>.
3. CTCAE v5 November 27, 2017. Common Terminology Criteria for Adverse Events. National Cancer Institute. Available from: https://ctep.cancer.gov/protocolDevelopment/electronic_applications/ctc.htm#ctc_50.

Supplemental Information:

Medications That Commonly Cause Hand-Foot Syndrome

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| Afatinib | Irinotecan |
| Amivantamab | Ixabepilone |
| Atezolizumab | Lapatinib |
| Avapritinib | Lenvatinib |
| Avelumab | Loncastuximab Tesirine |
| Axitinib | Margetuximab |
| Bevacizumab | Mobocertinib |
| Bosutinib | Nanoparticle Albumin-Bound Paclitaxel |
| Brigatinib | Nanoparticle Albumin-Bound Sirolimus |
| Cabozantinib | Nilotinib |
| Capecitabine | Nivolumab |
| Cetuximab | Osimertinib |
| Clofarabine | Oxaliplatin |
| Cyclophosphamide | Palifermin |
| Cytarabine | Panitumumab |
| Dabrafenib | Pazopanib |
| Dacomitinib | Pembrolizumab |
| Dasatinib | Pemigatinib |
| Docetaxel | Pertuzumab |
| Doxorubicin | Pertuzumab; Trastuzumab; Hyaluronidase |
| Doxorubicin Liposomal | Ramucirumab |
| Encorafenib | Regorafenib |
| Enfortumab vedotin | Ripretinib |
| Entrectinib | Rucaparib |
| Erdafitinib | Selumetinib |
| Erlotinib | Sorafenib |
| Everolimus | Sunitinib |
| Fluorouracil, 5-FU | Thiotepa |
| Gefitinib | Tivozanib |
| Gilteritinib | Tucatinib |
| Ifosfamide | Vemurafenib |
| Imatinib | Vinorelbine |
| Infigratinib | Ziv-Aflibercept |
| Ipilimumab | |