Understanding Treatment-Related Hand-Foot Syndrome (HFS) and Hand-Foot Skin Reaction (HFSR) During Cancer Treatment

Hand-foot syndrome (HFS; also called palmar-plantar erythrodysesthesia) and hand-foot skin reaction (HFSR) are skin problems caused by cancer treatment. Both mainly affect the palms of the hands and soles of the feet.

HFS is most often caused by certain chemotherapy medicines. HFSR is linked to some targeted cancer therapies. The two reactions can look different. They may also affect different areas and develop at different times during treatment.

Similarities

- **Caused by cancer therapy:** Both are side effects of cancer treatment that works throughout the body. Both can affect the palms of the hands and soles of the feet.
- **Affect the hands and feet:** Both can cause pain, soreness, tingling, or burning. Redness, swelling, and other changes to the skin may also occur.
- **Can become severe:** More severe reactions may cause blisters, peeling, cracks, skin breakdown, or open sores. These symptoms can make it harder to walk, grip objects, or do everyday activities.
- **Management strategies:** Skin care is important for both reactions. Avoiding pressure and rubbing on sore areas may also help. If symptoms are more severe, the care team may recommend medicine applied to the skin or medicine for pain. They may also stop cancer treatment for a short time or change the dose.

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Differences

Feature	Hand-Foot Syndrome (HFS)	Hand-Foot Skin Reaction (HFSR)
What Cancer Therapies Cause It	Capecitabine, fluorouracil (5-FU), pegylated liposomal doxorubicin, and other cytotoxic agents.	Sorafenib, sunitinib, regorafenib, cabozantinib, and other multikinase/VEGFR-targeted therapies.
How It Looks	HFS is usually spread out and affects both sides in a similar way. It may cause redness, swelling, tenderness, or burning. Peeling or thickened skin (hyperkeratosis) may follow. These changes can occur on the palms and/or soles.	HFSR usually causes painful, thickened areas of skin (hyperkeratotic or callus-like lesions). These areas have clear borders and may have redness around them. They often form where there is pressure or rubbing.
Where It Occurs	HFS can affect both the palms and soles. Sometimes, it can also affect the backs of the hands or feet or areas where skin folds.	HFSR is often worse on the soles and areas that have more pressure. These areas include the heels, foot pads, and joints. The hands can also be affected.
When It Starts	HFS often starts within days to weeks. The timing can vary based on the drug. It may develop later as a person receives more treatment over time.	HFSR often develops early in treatment. It commonly starts within the first 2 to 4 weeks.
Why It Happens	The exact cause is not fully understood. Several factors may play a role. These include how the drug reaches and is processed in the skin, delivery through eccrine sweat glands, damage to keratinocytes, and mechanical or vascular factors.	The exact cause is not fully understood. Blocking the VEGF/PDGF pathways may affect the skin's ability to repair itself. Repeated pressure and rubbing may also play a role.

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What can you do to help prevent or lessen HFS/HFSR?

- Apply an alcohol-free moisturizer often. Ask your care team which product is best for your treatment. Products used to help prevent skin problems may differ based on the cancer drug you receive.
- Ask your care team about urea cream. A 10% urea cream is often used for prevention. Higher strengths may be used for thick or callused skin caused by HFSR. Only use higher strengths as directed by your care team.
- Wear shoes that fit well and have good cushioning. Wear comfortable socks. Limit activities that put pressure on your feet or cause rubbing for long periods.
- Wear protective gloves when working with your hands. Try to avoid repeated gripping, rubbing, or pressure on your hands.
- Avoid products that may irritate your skin. These include harsh cleansers, solvents, and disinfectants.
- Try to reduce rubbing and other pressure on your skin. After washing, gently pat your hands and feet dry instead of rubbing them.
- Check your hands and feet regularly for changes. Tell your care team early if you notice new pain, redness, swelling, or blisters. Also tell them if symptoms make it harder to walk, use your hands, or do daily activities.

Call your care team if you experience any of the following symptoms:

- Blistering, open sores/ulceration, bleeding, or rapidly worsening skin changes.
- Pain that makes it difficult to walk, grip objects, or complete normal daily activities.

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Notes

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Scan the QR code below to access this education sheet.

Important Notice:

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