



EUROPEAN  
ACADEMY OF  
DERMATOLOGY &  
VENEREOLOGY

Information Leaflet  
for Patients

# Hand-foot syndrome and hand-foot skin reaction



#### The aim of this leaflet

This leaflet is designed to help you understand more about Hand-foot syndrome (HFS) and hand foot skin reaction (HFSR). It tells you what HFS/HFSR is, what causes it, how it is diagnosed and treated, and practical advice for managing this condition.

# Hand-foot syndrome and hand-foot skin reaction

## What are hand-foot syndrome and hand-foot skin reaction?

In patients with cancer, chemotherapy, immunotherapy, targeted therapy and Hand-foot syndrome (HFS) is a relatively common skin reaction due to anti-cancer drugs. It was first described with chemotherapeutic agents. More recently, hand-foot skin reactions (HFSR) have been described with a specific group of targeted therapies.

It corresponds to painful inflammation of the skin of the palms of the hands and/or the soles of the feet. Although HFS and HFSR are not life-threatening, they can be very painful, interfere with your daily activities, and have a negative impact on your quality of life.

## Who is affected by HFS and HFSR?

Some types of anticancer drugs have higher risk of causing HFS/HFSR than others. You also have higher chance of getting HFS/HFSR if you already have skin conditions on your hands and feet before you start treatment. Older age, female gender, diabetes, and polyneuropathy may increase the risk of getting HFS/HFSR.

### Chemotherapeutic agents that most frequently cause HFS:

- Pegylated Liposomal Doxorubicin (PDL)
- Docetaxel
- Cytarabine
- 5-fluorouracil (5-FU)
- Capecitabine
- Tegafur

### Targeted therapies that can most frequently cause HFSR

- Sunitinib
- Sorafenib
- Axitinib
- Cabozantinib
- Regorafenib
- Lenvatinib
- Vemurafenib
- Encorafenib
- Dabrafenib
- FGFR inhibitors

## Which are the signs and symptoms of HFS/HFSR?

HFS usually develops within days, weeks, or months after starting chemotherapy.

HFSR develops in the first two to four weeks after starting targeted therapies.

HFS and HFSR have common features in the palms of the hands and soles of the feet that include

- Numbness
- Tingling
- Burning pain
- Sensitivity to touch

The symptoms can vary from relatively painless to severely painful. In its worst form, it will be difficult to walk because of the pain, swelling, fissures, and wounds. You can also experience difficulties using your hands and fingers. These conditions may make it difficult to take care of yourself and may significantly affect your quality of life.

On the palms of your hands and the soles of your feet, you can see a sharply defined redness, with or without swelling, fissures and sores, and scaling. There may also be peeling, dryness, or flaking of the skin. In advanced stages, blisters and open wounds can develop. The skin and nails can get infected.

Patients receiving targeted therapies can also present with localized thick calluses and painful blisters on the rubbing and pressure points.

The severity varies from person to person. There are three grades of severity.

Hand-foot syndrome Grade 1: minimal skin abnormalities without pain:

- You have somewhat red skin with blisters and/or calluses, slight swelling but no pain. You can feel a slight hypersensitivity, itching, or a mild burning sensation.
- There is no influence on your daily life.

Hand-foot syndrome Grade 2: moderate skin abnormalities with few limitations in self-care and daily activities

- In this phase you already suffer more from redness, fissures, blisters, bleeding, slight swelling, and/or calluses that may also hurt.
- HFS/HFSR has some, but not too great of an influence on daily life.

Hand-foot Syndrome Grade 3: severe skin abnormalities with major limitations in self-care and daily activities

- In this phase you may experience redness, fissures, blisters, calluses, bleeding, swelling, and dryness
- The pain greatly restricts you in your daily activities. You have pain when walking and/or grasping objects.

The degree of severity is important to assess whether the treatment should be temporarily stopped, the dose should be reduced, or whether another treatment should be chosen.

### How to prevent or reduce HFS/HFSR?

It may not be possible to prevent HFS, but there are instructions to reduce the damage of the skin of your hands and feet, and of your nails.

Check your hands and feet every day to see if there are any abnormalities and take action to prevent them from getting worse.

1. Keep your skin clean to prevent infections.
2. Keep your skin hydrated: apply a moisturizing cream regularly, especially after every wash, and in between. Ask your oncology nurse for advice about moisturizing creams.
3. Protect the skin of your hands and feet from damage:
  - Avoid pressure on the hands and feet: wear shoes that are not too tight and don't wear high heels. Protect your hands by wearing work gloves.
  - Avoid activities that require your hands to exert a lot of effort, such as cleaning, odd jobs, or hobbies that can damage your skin and nails.
  - Protect your skin from frequent contact with moisture. Protect your hands when you get them wet, wear vinyl gloves when cleaning the house, doing dishes, or gardening. For even more protection, buy vinyl gloves one size larger and wear white cotton gloves underneath to absorb sweat and protect the skin.
  - Wear 100% cotton socks. Cotton socks help absorb moisture and can help prevent fungal infections and skin maceration.
  - Avoid hot hand and foot baths.
  - Do not expose your hands and feet to extreme cold: wear gloves and slippers to protect your hands and feet from the cold.
  - Take care of wounds on the skin. Ask your oncology nurse for advice if wounds occur on the skin and around your nails.
4. Be careful if you have your skin

and nails treated by a beautician, manicure, or pedicure.

5. Be careful with the use of supplements for "healthy hair and nails". It is not known for most supplements whether they interfere with the effect of the treatment. Always talk to your doctor before taking any over-the-counter supplements or medications.
6. Be careful with the use of "natural cosmetic products". They are not necessarily safer or more effective than 'regular' products.

### Take the "3C" approach against HFSR

- Control: keep calluses under control and, where possible, prevent calluses. Remove excessive calluses on palms and soles before, during, and after treatment.
- Comfort: avoid pressure on hands and feet. Wear shoes that are not too tight and do not wear high heels. Protect the areas of your feet that are under pressure with foam-like absorbent soles and shock absorbers. Protect your hands by wearing work gloves. Avoid activities that require your hands to exert great effort, and, if necessary, protect your hands with gloves with shock-absorbing materials.
- Creams: Keep your skin hydrated by regularly applying moisturizing creams.

### How to manage HFS/HFSR?

Prevention, early recognition and treatment of HFS/HFSR are important to ensure complete and optimal cancer-treatment, by avoiding dose reduction or treatment discontinuation.

Carefully assess the skin of the hands and feet and act in the event of early abnormalities:

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## HFS Grade 1: mild complaints

- Follow the preventive advice.
- If the above measures do not (sufficiently) relieve the HFS/HFSR, you must inform the oncology treatment team. Don't wait for the HFS/HFSR to become too serious.

## Grade 2: moderate complaints

- Follow the preventive advice.
- Contact the oncology treatment team.
- Take painkillers, such as paracetamol, to relieve the pain.

## Grade 3: serious complaints

- Follow the preventive advice.
- Contact the oncology treatment team.
- Take painkillers, such as paracetamol, to relieve the pain.

Your doctor may prescribe topical medications that you can apply to your skin to treat HFS/HFSR. These medications may include:

- Steroids
- Moisturizers
- Medications that remove extra skin
- Antimicrobial medications (medications that kill germs)
- Liquid bandage to close any open skin on your hands or feet
- If your symptoms become severe, your doctor may prescribe oral medications (medications you take by mouth) for pain control or swelling.
- A dose reduction may also be necessary.

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While every effort has been made to ensure that the information given in this leaflet is accurate, not every treatment will be suitable or effective for every person. Your own clinician will be able to advise in greater detail.