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Skin Reactions to Targeted Therapies [1]

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Targeted therapy is a treatment that targets faulty genes, proteins, or the tissue environment that contributes to cancer growth and development. Compared with chemotherapy [3], targeted therapies are more specific treatments. This means they may cause fewer side effects, such as infections, weakness, and changes to blood counts. However, patients receiving a targeted therapy often develop skin, hair, nail, and/or eye problems.

Specific side effects to the skin, hair, and nails depend on the drug that the person receives. These side effects are caused by the drugs' effect on the healthy growth of these tissues.

If your doctor prescribes targeted therapy, ask about what side effects to expect and how they will be treated. There are often effective ways to treat these side effects.

Drugs that target EGFR

A common type of targeted therapy is directed against a molecule known as epidermal growth factor receptor (EGFR). EGFR fuels the growth of cancer cells. It also plays a role in the normal growth of the skin, hair, and nails. That means rashes and changes to the hair and nails may occur after treatment with these drugs. EGFR drugs including the following:

- Cetuximab (Erbitux)
- Erlotinib (Tarceva)
- Gefitinib (Iressa)
- Lapatinib (Tykerb)
- Panitumumab (Vectibix)
- Vandetanib (Caprelsa).

Your doctor can help you manage these side effects so treatment can continue. Managing these side effects can also help avoid big changes to your skin, hair, and nails. It is important to note that the skin side effects linked with these drugs are not allergic reactions or infections.

General signs and symptoms

Most patients taking drugs that target EGFR develop a rash on the face and upper body. It usually occurs within the first few weeks of taking these medications. You may notice redness or a warm sensation like sunburn before a rash begins. After several days, tender pimples and pus bumps appear, and the surrounding skin feels slightly tender. Rashes tend to be mild to moderate. However, some people have severe rashes that cause major physical and cosmetic discomfort.

Other symptoms may include the following:

- Pimples and red bumps on the face, neck, and upper chest or back; at times, the pimples may itch
- Tenderness in facial skin, with a sunburn-like sensation
- Itching of the skin, especially the scalp
- Tender sores inside the nose, corners of the mouth, or eyes
- Painful redness and swelling around nails, especially the thumbs and big toes
- Nails that become brittle and may loosen from the nail bed
- Cracking of the fingertips, which are similar to paper cuts
- Hair loss over the entire scalp and reduced hair on legs or arms
- Increased growth and curling of the eyelashes and eyebrows
- Increased facial hair growth
- Easy bruising of the skin
- Dry, flaky skin
- Dry, itchy eyes

The skin can also become very tender and itchy, interfering with daily activities and sleep. Vigorous scratching can result in breaks that may make the skin more prone to infections. The inflammation around the nails can make grooming, dressing, and other activities painful or difficult.

Sorafenib and sunitinib symptoms

Sorafenib (Nexavar) and sunitinib (Sutent) work in more than one way to stop or slow cancer growth. Most skin reactions are mild and manageable. However, some people taking these drugs experience painful, thickened areas of skin on the hands. These areas may blister and become so tender that they interfere with walking or holding objects.

Patients may also develop a rash that causes a feeling of warmth or burning on the face or scalp. In addition, some people may notice mild hair loss from sorafenib. Dry skin is also

common and should be treated early to prevent itching.

Vemurafenib (Zelboraf) symptoms

With vemurafenib (Zelboraf), people can develop a rash on the upper body, including the face. This rash appears as flat red spots. Even though this may be difficult to cope with, patients should not stop taking the drug.

People may also develop thick calluses on the palms and soles, mostly on the heels and balls of the foot. Or, they may develop some type of skin growth. These skin growths usually appear on the face, chest, or upper back within the second and third month of treatment. These growths are not usually dangerous to a person's health.

Ipilimumab (Yervoy)

This drug boosts a person’s immune system to attack cancer cells. This can cause red bumps on the face and torso. It can also cause itching on the legs and sometimes the entire body. This itching can be very bothersome, especially at night.

Another condition that may appear is pale spots on the skin or graying of the hair. This side effect is a result of the drug attaching to the cells that give skin its color. Interestingly, this side effect is also a sign the drug may be working well.

Everolimus (Afinitor) and temsirolimus (Torisel)

People taking these drugs may develop a bumpy rash on the arms and sometimes the legs. Usually appearing within the first few months of treatment, the rash heals without scarring. Mouth sores that look like canker sores, called aphthous ulcers, are another side effect. These usually appear at the beginning and then go away over time.

Managing and relieving these reactions

Although rashes, dry skin, and nail and hair reactions are rarely severe, they often cause major discomfort. Patients may even want to stop cancer treatment because of these reactions. So, it is important to talk with your doctor about what to expect. You should also tell your doctor as soon as you start feeling or seeing any side effects. There are early and effective treatments for these reactions.

The following suggestions may help avoid reactions and help relieve them if they do happen:

- Before you begin treatment, talk with your doctor about the side effects. You may wish to talk with a dermatologist. A dermatologist is a doctor who specializes in skin conditions. Ask what to do if a rash or other problems appear. This may include how to get a prescription filled or the best way to see the doctor.
- At the first sign of a reaction, tell your doctor or a dermatologist familiar with these

reactions. Signs of a reaction include a warm or burning sensation, pimples, nail cracks, or dry skin.

- Avoid the sun, and use a sunscreen with a sun protection factor (SPF) of at least 15. The sunscreen should contain zinc oxide.
- Remember to use enough sunscreen. Apply more than half a teaspoon of sunscreen to each arm, the face and neck. Apply just over one teaspoon to the chest and abdomen, back, and each leg. Also, apply sunscreen every two hours or more often if sweating or swimming.
- Use a broad-brimmed hat if going outside and avoid being in direct sunlight between 10 AM and 4 PM.
- Use a mild soap in the shower, and avoid soaps with strong scents. Shower with lukewarm water and avoid long, hot showers. Also, avoid laundry detergent with strong perfumes.
- Apply a moisturizer within 15 minutes of showering or bathing to dry areas. Use hypoallergenic moisturizers that do not have perfumes or preservatives, such as Vanicream, Aveeno, CeraVe, Cetaphil, and Eucerin.
- Avoid anti-acne skin products containing alcohol, benzoyl peroxide, or retinoids, because they can dry out your skin.
- Your doctor may prescribe medicated creams for the skin to effectively relieve symptoms of rash. If the rash is severe or covers a large area of the body, oral corticosteroids, such as prednisone or dexamethasone (multiple brand names) may be needed.
- Antibiotics, usually taken two to four weeks in pill form, are an effective therapy for rashes and nail tenderness.
- Whenever there is discharge of pus, your doctor may want a sample for a culture to determine the appropriate antibiotic treatment.
- When the skin is very dry and flaky, your dermatologist may prescribe a moisturizer containing urea or lactic acid. However, do not apply this type of moisturizer to sensitive or red areas of the skin.
- For the hand/foot skin reaction to sorafenib and sunitinib, use creams containing urea called carmol 20 or carmol 40, salicylic acid (Salex cream kit). Strong corticosteroids such as fluocinonide (multiple brand names), clobetasol (multiple brand names) are also options. Gel insoles may also help. In addition, do your best to protect against injury or putting too much weight on hands and feet, especially during the first two months of treatment.
- For itching in one specific area, called localized itching, apply a cream containing a corticosteroid or a numbing medicine, such as lidocaine 2% or pramoxine (multiple brand names) several times a day. For more generalized itching or itching that affects sleep, take an antihistamine pill, such as cetirizine (Zyrtec) or diphenhydramine (Benadryl), as needed.

Summary of Targeted Therapies and Common Side Effects

Drug	**Types of cancers for which drug may be prescribed**	**Side effects**

Erlotinib Gefitinib Cetuximab Panitumumab	• Colorectal • Head/neck • Lung • Pancreas	• Rash on face and upper body • Inflammation around fingernails • Dry, itchy skin • Hair loss on scalp • Increased hair on face and eyelashes
Sorafenib Sunitinib	• Renal cell cancer (a type of kidney cancer) • Gastrointestinal stromal tumor (GIST) • Hepatocellular cancer (a type of liver cancer)	• Hand/foot skin reactions (tender, thickened areas sometimes with blisters on palms and soles) • Redness and flaking on scalp and eyebrows • Warm, burning sensation on face along with redness • Dry, itchy skin • Hair loss on scalp
Ipilimumab (Yervoy)	• Melanoma	• Bumpy red rash • Itching • Pale skin patches and gray hair
Vemurafenib (Zelboraf)	• Melanoma	• Red rash on face and upper body • Hand/foot skin reactions (tender, thickened areas sometimes with blisters on palms and soles) • Skin growths, including non-dangerous skin cancers
Everolimus (Afinitor) and Temsirolimus (Torisel)	• Renal cell cancer (a type of kidney cancer) • Pancreatic neuroendocrine tumor (a type of pancreas cancer) • Subependymal giant cell astrocytoma (SEGA), a benign brain tumor associated with tuberous sclerosis [4]	• Mouth sores (like canker sores) • Bumpy rash on upper body
Vandetanib	• Medullary thyroid cancer	• Rash or acne • Dry, peeling, or itchy skin • Blisters or sores • Skin redness

More Information

Side Effects [5]

Understanding Targeted Treatments [6]

Links
[1] http://www.cancer.net/navigating-cancer-care/side-effects/skin-reactions-targeted-therapies
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