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Why a Rash?

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With conventional chemotherapy, side effects aren't indicative of the drug's effectiveness, but getting a rash with a drug that targets the epidermal growth factor receptor, referred to as EGFR, may be a sign it's killing the tumor. EGFR is seen in several cancers, such as lung and colon, but it is also expressed on the skin and lining of the intestines, which is why EGFR-targeting drugs can cause skin rash and diarrhea.

Rashes resulting from EGFR inhibitors occur for several reasons. First, the drugs alter the normal growth of skin cells. It takes about a month to completely renew the outer layer of skin, so the skin becomes more susceptible to irritants and skin allergens, which make it dry and itchy. Second, the drugs kill skin cells, causing redness and swelling as the body tries to repair the damage. Third, the drugs impair the skin's ability to retain moisture, which results in dry skin, and can lead to inflammation and rash.

Rashes can also be caused by radiation therapy, a common side effect called radiodermatitis. Similar to a bad sunburn, the skin can become inflamed and begin peeling. "Rashes due to radiation tend to be very painful, and are associated with redness and blistering at the skin overlying radiation sites," says Mario E. Lacouture, MD, of the Robert H. Lurie Comprehensive Cancer Center.

Patients with fair skin or those who receive high radiation doses are more likely to be affected. If chemotherapy is given during or shortly after radiation, a reaction called radiation recall may occur when a patient develops a rash in the treated area weeks or months after radiation.

"The rash is [really] a surrogate marker. It doesn't mean that the tumor is being killed at that point," says Dr. Lacouture. Rather, he says, it likely means the patient with a rash degrades the drug slower and therefore has more of the drug in their blood, so they get the worst side effects and the most benefit.