Acute radiation dermatitis is a common side effect of radiotherapy. The majority of patients receiving radiation therapy will develop this skin toxicity, which is caused by the effect of radiation on the rapidly dividing cells of the basal layer of the epidermis as well as the dermis (Williams et al., 1996). Fisher et al. (2000) estimated that 87% of all women undergoing radiation therapy for breast cancer will develop some degree of radiation dermatitis. The intensity of the reaction depends on the radiation fraction schedule, total dose, anatomic treatment area, radiation type, and individual differences among patients (Boström, Lindman, Swartling, Berne, & Bergh, 2001; Sitton, 1992). Severe radiation dermatitis can be painful, may lead to localized and systemic infections, and can cause permanent scarring. Occasionally, severe reactions can necessitate temporary or permanent cessation of treatment, which could decrease the odds for cancer control or cure (Williams et al.).

Pathophysiology

The epidermis of the skin contains a self-renewing system where cell production at the basal layer equals cellular loss.