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Currently, topical photodynamic therapy (PDT) has received approval for the treatment of dermato-oncologic conditions like actinic keratoses, Bowen's disease, in-situ squamous cell carcinoma and basal cell carcinoma in many countries all over the world. For many non-neoplastic dermatological diseases like localized scleroderma, acne vulgaris and viral warts a therapeutical benefit of PDT is evident, too. Unlike the formerly used, only systemically-applicable haematoporphyrin derivates, the recently developed topical photosensitizers 5-aminolevulinic acid (ALA) or its methyl ester (MAL) induce photosensitizing porphyrins. Moreover, the latter do not induce strong generalized cutaneous photosensitization. Due to the easy accessibility of skin to light activation, incoherent lamps or LED arrays are suitable for PDT. The production of reactive oxygen intermediates like singlet oxygen depends on the applied light dose as well as the concentration and localization of the photosensitizer in the diseased tissue. Either cytotoxic effects resulting in tumor destruction or immunomodulatory effects improving inflammatory skin conditions are induced. Treating superficial non-melanoma skin cancer, PDT has been shown to be highly efficient despite the low level of invasiveness. The excellent cosmetic results after treatment are beneficial, too.