



ACNE, ROSACEA, AND RELATED DISORDERS (INCLUDING HIDRADENITIS SUPPURATIVA)

## LOW DOSE ISOTRETINOIN FOR THE TREATMENT OF ACNEIFORM ERUPTION INDUCED BY EGFR INHIBITOR (AFATINIB)

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**Background:** Afatinib is a member of a new family of antineoplastic agents that irreversibly inhibits EGFR, HER2 and HER4 receptor kinases, also inhibiting transphosphorylation of ErbB3, and which are increasingly being used in the treatment of solid tumors. The most common cutaneous side effect of this family of drugs is an acneiform eruption. Systemic isotretinoin is a possible therapy reported in literature. We describe for the first time, to our knowledge, a case of acneiform eruption induced by afatinib treated with low dose isotretinoin.

**Observation:** We have observed a male Caucasian patient aged 36 years old who presented to our attention for a papulo-pustular eruption mainly localized to face, scalp, trunk and hands during the subadministration of Afatinib chemotherapeutic regimen for a Non-Small Cell Lung Carcinoma (NSCLC).

Total progressive resolution of the acneiform eruption was seen 6 months later the beginning of oral isotretinoin 20mg/die despite continuation of the same dose of Afatinib.

Inhibition of EGFR-mediated signaling pathways affects keratinocytes in several ways, resulting in distinctive cutaneous conditions.

The EGFR inhibition leads to apoptosis of keratinocytes and to the recruitment of inflammatory cytokines, perifollicular inflammation and subsequent change in the pilosebaceous unit.

Isotretinoin is a pro-drug for all-trans retinoic acid that can induce long-term remission of acne.

The pharmacological effects of isotretinoin regulate the proliferation and differentiation of keratinocytes.

**Key message:** Expression of the differentiation-related keratins 1 and 10 are induced by an EGF-receptor inhibitor, while are downregulated by retinoid treatment.

Retinoid analogs significantly reduce inflammatory lesions while inhibition of the EGFR signalling pathway up-regulates pro-inflammatory cytokines.

This is the first case report, to our knowledge, of acneiform eruption due to Afatinib successfully treated by low dose isotretinoin.

