



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

MODELING THE NATURAL HISTORY OF ACNE LESIONS AND EVOLUTION TO ACNE SCARS

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Introduction: Although acne is one of the most common dermatologic diseases worldwide, the natural history of acne lesions and the genesis of acne scarring has been insufficiently studied.

Objective: Evaluate the evolution of primary and secondary lesions in acne.

Materials and Methods: This was a multi-center, international (France, Canada), randomized, vehicle controlled, investigator blinded study that tracked lesions (vehicle half of face) for 24 weeks. Subjects were aged 18-35 (N=32) with moderate acne (20-40 inflammatory lesions; ≤ 1 nodules, and ≥ 10 atrophic acne scars). Subjects were evaluated twice weekly for 2 months, and every 2 weeks for an additional 4 months. Acne lesions (closed comedones, papules, pustules, post-inflammatory erythema, post-inflammatory hyperpigmentation, and atrophic acne scars) were tracked by clinical evaluation and standardized digital photography at each study visit. Descriptive analyses (duration and transitions between lesions), statistical modeling (Bayesian) of acne lesion progression, and Kohonen mapping of parameters most likely associated with the risk of scarring were performed.

Results: Primary lesions were transient, with a mean duration of 5.8 ± 4.1 days for papules, 3.9 ± 1.2 days for pustules, and 7.1 ± 5.8 days for closed comedones. Scars formed continuously, 36% of features identified as scars were transient (arose and resolved within the 6-month study period, mean duration 41 ± 38 days), and 64% did not resolve by study end. Almost all scars were derived from papules and post-inflammatory lesions; only 2% of scars were derived from pustules and closed comedones. The overall probability of scarring from any individual acne lesion was 5.7%. Papule duration was a leading risk factor for scarring.

Conclusions: This was the first study to evaluate the dynamic nature of acne lesions.





Scarring occurs continuously, and scars arise primarily from papules and post inflammatory lesions. These results support early acne lesion treatment for the prevention of scarring.

