What's new in the treatment of acne: an American perspective

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Acne vulgaris is a common chronic, inflammatory skin disease of the pilosebaceous units. It is caused by sebaceous gland hyperplasia, altered follicular growth and proliferation, *Propionibacterium acne (P. acne)* proliferation and inflammatory response.

The Global Alliance to Improve Outcomes in Acne guideline recommends early combination of topical retinoid and antimicrobials for the treatment of mild to moderately severe acne. Topical retinoids target the microcomedones, and thereby stopping new lesions from forming. When they are given in addition to antimicrobials, a faster and greater clearance of both inflammatory lesions and comedones can be achieved.

Epiduo® is a fixed-dose combination of 0.1% adapalene and 2.5% benzoyl peroxide (BPO). Adapalene is a third generation retinoid-like molecule with anti-inflammatory, comedolytic and anti-comedogenic properties. It shows rapid follicular penetration. Moreover, it is more stable to light and to combination with BPO, and is less irritating than other retinoids. BPO is a potent bactericidal agent against *P. acne* and it does not lead to a risk of resistance. It also possesses mild anti-inflammatory and anti-comedogenic properties.

Efficacy study showed that Epiduo® was significantly more effective and had a faster onset than adapalene or BPO monotherapy in moderately severe acne patients. It consistently provided an additional decrease in both inflammatory and non-inflammatory lesions when compared to either monotherapy alone as early as at week one. Tolerability and safety of Epiduo® was comparable to adapalene and the mean tolerability score for dryness, burning, erythema and scaling were less than one (mild). Most local irritation was experienced at week one to two, which was then slowly reduced.

Another long-term safety and efficacy study showed that Epiduo® was active against both inflammatory and non-inflammatory lesions with a rapid onset and continued activity up to a year. The reductions in total, inflammatory and non-inflammatory lesion counts were 70.8%, 76% and 70% respectively at month 12. Adverse events were limited to mild irritation occurring in the first few weeks of treatment which decreased thereafter. Less than 2% of patients dropped out due to adverse events.

Another phase IV trials in progress showed that the addition of Epiduo® to oral doxycycline showed a greater clearance in severe acne patients when compared to oral doxycycline alone. The possible reason was that Epiduo® could clear the resistant strain of *P. acne*.

In summary, Epiduo® provides synergistic effect than either adapalene or BPO alone in the treatment of moderately severe acne. It helps to speed up the clearing of inflammatory lesions and provides lasting therapeutic efficacy over a year. Moreover, it simplifies treatment regime with mild local adverse effects, which help to improve compliance. Finally, BPO is an effective antimicrobial agent without the risk of development of antibiotic resistance. It is thus more favourable in this era of rising antibiotic resistance.

Learning points

Fixed combination of adapalene and BPO provides a synergistic effect in treating moderately severe acne in a user-friendly manner. It targets three out of four main elements of acne pathogenesis, namely anti-comedogenic, anti-inflammatory and anti-microbial with no potential for development of antibiotic resistance.