

Benzoyl Peroxide: Lack of Sensitization

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Abstract. A prospective study of 445 patients using benzoyl peroxide, observed regularly over a 12-month period, uncovered only a very low incidence of moderate or severe local reaction. There was, however, a significant level of mild primary irritant dermatitis which settled with continued use. In only 6 patients was there severe local reaction; one patient was lost to follow-up but in the 5 patients patch tested, only one had a contact allergic dermatitis. The study indicates the overall cutaneous safety of benzoyl peroxide.

Key words: Benzoyl peroxide; Primary irritant dermatitis; Contact allergic dermatitis

Benzoyl peroxide can produce an allergic contact reaction (1, 2) and it has been suggested that this drug may have a high incidence of contact sensitization, (4). However, these studies involved the use of repeated insult patch tests and in practical terms may not be strictly related to the clinical in-use situation. In our clinics, however, it seemed that in practice the incidence of reaction was less than 1%. We therefore designed a study as part of a long-term follow-up treatment of acne that would allow us to measure the in-use allergenicity and irritancy of benzoyl peroxide preparations.

MATERIALS AND METHODS

In this prospective study 445 patients (144 males and 301 females) were seen at 2-monthly intervals up to a maximum of 36 months; all patients had clinical acne and most received treatment—not just with benzoyl peroxide twice daily (Table I) but also with an oral antibiotic (either

Table I. *The types of benzoyl peroxide prescribed*

Trade name	Concentration (%)	Number of patients (%)
Panoxyl Gel 5	5	235
Panoxyl Gel 10	10	33
Acetoxyl Gel 2.5	2.5	4
Acetoxyl Gel 5	5	122
Benzoyl Lotion	5	51

Table II. *The incidence of the primary irritant dermatitis*

	2 months (%)	4 months (%)	6 months (%)
Erythema	14.2**	5.7	4.2
Scaling	24.1**	14.7**	6.1

** Significant difference in the incidence between the visits at the 1% level.

Tetracycline, Erythromycin or Co-Trimoxazole). The average duration of combined therapy was 7.9 months; in most patients after oral therapy was discontinued (usually after 6 months) benzoyl peroxide was continued after a further 5.2 ± 0.8 months.

At each visit a history of, or the presence of erythema and scaling was recorded on a 0–5 scale; zero representing no problem, 5 a severe reaction. The patient was also told to report any unwanted or side effects of therapy.

RESULTS

Table II shows that many developed what was usually a mild primary irritant reaction in the first few weeks of application. All these patients were able to continue on the benzoyl peroxide by reducing the frequency of application for a few days. Thereafter treatment was once or twice daily. Table II shows that with continued use the incidence of the irritant reaction significantly decreased: no one preparation produced, as a percentage, significantly more irritation than any other.

Six patients had severe (grade 4–5) redness and scaling. Four patients reacted to 'Panoxyl Gel 5' and one each to 'Acetoxyl Gel 5' and 'Panoxyl Gel 10'. We lost one of these patients to follow-up but the remaining 5 attended for patch tests to 0%, 0.1% and 1.0% benzoyl peroxide in the bases provided by the appropriate company. Only one patient had an allergic reaction and this was a strong reaction to both concentrations. The other 4 patients showed no reaction apart from a mild redness at 1% but no problem at 0.1%, and after their facial reactions had settled were able to be gradually reintroduced to the use of benzoyl peroxide.

DISCUSSION

This prospective study confirms our clinical impression that topical benzoyl peroxide as acne therapy has a low incidence of allergic reactions. These patients indicated that they used approximately 1.5

tubes of the topical preparation per month, which gives an approximate total usage of 8076 tubes.

There are several conceivable reasons, none of which satisfactorily explains why our incidence of contact dermatitis is less than that reported (4). These authors used repeated insult patch tests which were performed on the upper arm; at this site, there is little lipid, as compared with the facial skin, and this may influence the cutaneous reactivity. In addition, the patch tests were under occlusion, and in the treatment of acne benzoyl peroxide is not so applied. Furthermore the initial provocation tests contained sulphur and all tests used a benzoyl peroxide ointment formulation whereas in clinical practice a gel or lotion is the base commonly used.

There is no doubt that benzoyl peroxide can produce a high incidence of primary irritant reaction and this is not unusual with many other acne preparations such as retinoic acid gel and cream (3). Only in 4, possibly 5, patients was the skin damaged sufficiently to warrant complete stopping of the therapy prior to patch testing; thereafter 4 were able to continue with less frequent applications of benzoyl peroxide.

We have also confirmed previous studies that this irritancy decreases with time, an important point which must be emphasized to patients and physicians, so that the topical preparation is used optimally. Otherwise the patient and physician will prematurely, and unnecessarily, stop what is an effective topical acne treatment.

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Herpes simplex Infection Simulating a Positive Auto-inoculation for *Haemophilus Ducreyi*

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Abstract. Auto-inoculation from a genital ulcer suspected of being *ulcus molle* gave redness after 24 hours and after 48 hours vesicles and pustules appeared. Cultivation from the auto-inoculation after the 48 hours was positive for herpes simplex virus type 2.

Our observation underlines two points: auto-inoculation for the diagnosing of *Haemophilus ducreyi* infection may be mimicked by herpes simplex infection, and the incubation period of herpes simplex can be shorter than the 4-5 days usually given.

Key words: *Ulcus molle*; Herpes simplex virus 2; Incubation period; Auto-inoculation

Auto-inoculation of material from genital sores suspected of being chancroid is still occasionally used with the purpose of obtaining *Haemophilus ducreyi* more easily for culture than from the natural sores (10). A positive auto-inoculation will initially show vesicles and pustules and later a new sore appearing 2-3 days after transmission.

In a patient, culture from an auto-inoculation showing vesicles and pustules was positive for herpes simplex virus 2 days after transmission, whereas culture for *Haemophilus ducreyi* proved negative. This period of incubation is much shorter than usually described for herpes simplex. This observation is of relevance for diagnostic and epidemiological considerations.

CASE REPORT

The patient was a 20-year-old male in otherwise good health, who on a particular day following sexual intercourse noticed redness and scratch marks on the right side of glans penis. After 4 or 5 days he developed multiple, small, indurated ulcerations on glans penis and the preputium and had yellow viscous urethral discharge. Before this episode he had not been sexually active for several months. He was seen 7 days after coitus. He felt a little weak, but not febrile. In the left inguinal region a painful mobil gland was found, measuring 1.5×1.5 cm. In the right inguinal region there was redness and sore infiltration in a 4×4 cm area covering a mobile gland.