

## Annotation

# Acne vulgaris—a disease treatable by the paediatrician

Acne is an almost universal problem of adolescence. Fifteen per cent of adolescents with acne have a condition of sufficient severity to warrant advice from a doctor. Eighty-five per cent have physiological acne, and many such patients use preparations bought from a chemist.

Because of the earlier onset of puberty in girls acne is generally seen earlier in them than in boys, and reaches its peak incidence and severity by the time they are aged between 16 and 17 years. In boys the maximum incidence and severity is between 17 and 19 years. Many magazines and some medical books suggest that acne resolves in the late teens or early twenties; this is not necessarily so. Although the incidence and severity may gradually decline, many patients with acne major still have treatable acne when they are aged 23 years.

Acne is basically caused by a defect in the sebaceous glands which leads to the production of large quantities of sebum. This seborrhoea is primarily androgen induced and may represent a (possibly genetic) hyper-responsiveness of the sebaceous glands to circulating androgens. Other aetiological factors are concerned, in particular blockage of the pilosebaceous duct and the subsequent colonisation with *Propionibacterium acnes* and *Staphylococcus epidermidis*. Production of biologically active compounds by these bacteria mediates obstruction of the duct and inflammation. Inflammation is due to both immunological and non-immunological factors, and the host response may also be important.

Most currently available treatments work by influencing the *P. acnes* population; some treatments undergoing active research (not discussed further here), act by directly influencing sebum production which is the main drive to acne.

### General advice and support

This is mandatory. Many patients and doctors do not realise that acne is a slow-responding disorder; the need for long-term treatment must be stressed, otherwise the patient will stop treatment prematurely and lose faith.

The patient may want to know about diet, washing habits, and cosmetics. There is no outstanding

evidence to incriminate food as causing acne; nor are medicated soaps necessary as generally the patient is receiving effective microbial therapy already.

Cosmetics should not be prohibited, and a young girl with bad acne needs (at least for the first few months) some make-up. There is no universal panacea. A non-medicated, lightweight, non-greasy make-up is helpful. Antimicrobial therapy has been and will remain for some years the main treatment in acne.

### Choice of therapy

**Oral antibiotics.** Patients with moderately severe or severe acne require long-term oral antibiotics; the choice is either tetracycline or erythromycin.

One of the problems with tetracycline is its poor oral absorption; if taken with milk or food, it forms insoluble calcium complexes. It is therefore recommended that tetracycline should be taken with a little water between 30 minutes and one hour before food so as to obtain maximum absorption.

### Topical therapy

#### *Benzoyl peroxide*

Benzoyl peroxide is probably the most effective topical treatment; it acts by reducing the propionibacterium population. It is available in several preparations as a gel, cream, or lotion in 2.5%, 5%, and 10% concentrations. As with oral antibiotics, adequate data on dose response are lacking but clinical impression indicates that a dose-response relationship may exist. Most patients begin with a 5% concentration and increase it to the 10%; the 2.5% can be used in any patient with a history of skin irritancy. Many well-controlled studies would be needed to decide the ranking order of the various preparations.

#### *Retinoic acid*

In the USA topical vitamin A is more widely used than here. The drug acts by loosening the keratin plug; this in turn reduces the number of non-inflamed lesions and thus fewer inflamed lesions are formed. It has a greater degree of skin irritancy but, as with benzoyl peroxide, its side effects can be controlled by adjusting the frequency of treatment.

It is the topical drug of choice in patients with many comedones and it is available as a gel or cream.

Topical therapy must be given to all patients at all stages of their management and should be applied to the back and chest if these are affected, as well as to the face; the patient often fails to recognise the need to apply topical therapy to these other areas of the body.

### Topical antibiotics

In the UK two topical antibiotic preparations are available on prescription. The older one contains neomycin which does not affect *P. acnes*; it contains low doses of corticosteroids, which are not a good form of therapy for treating facial conditions. The other contains chloramphenicol which does act against *P. acnes* but it, too, contains a small quantity of corticosteroids.

**Other therapies.** Other preparations are available on prescription; one contains aluminium oxide of various concentrations and lacks evidence of efficacy. Benzoyl peroxide is available in combination with various concentrations of sulphur but the role of sulphur in acne is debatable; some data suggest that it may in fact be comedogenic, while other results have been contradictory. Another brand contains hydroxyquinoline which has been shown to have some anti-acne effect.

In the *British National Formulary*, several preparations are described which contain sulphur and resorcin although there is no evidence to support the use of the latter. These preparations are also not very elegant.

Detergent washes are often liked by the patient as they appear to reduce the seborrhoea, but this effect is only temporary. However, such preparations, which may contain 4% chlorhexidine gluconate, do not influence sebum production.

### Dosage and duration of treatment

A 6-month course of treatment is the minimum for any patient with acne vulgaris. Patients with mild acne generally require topical therapy only, benzoyl peroxide being the preparation of first choice. Patients with severe acne should be given tetracycline or erythromycin 250 mg four times a day, in addition to topical therapy. The dose is gradually decreased over 3 to 4 months to 250 mg twice daily according to clinical response. The patient is then maintained on this smaller dose for at least 2 months. Patients with mild and moderate acne require twice daily therapy for at least 6 months.

Topical therapy, usually with benzoyl peroxide or retinoic acid, is essential throughout this period. After about 6 months the oral drug can be stopped, but the topical therapy must continue. On stopping oral therapy, 70% of patients will have relapsed to 50% of their original grade within 12 months, but there is no contraindication to the giving of repeated courses of the same oral antibiotics as *P. acnes* rarely becomes resistant.

### Side effects

**Oral therapy.** Acne treatment is safe. Abdominal colic, with or without a little diarrhoea, occasionally requires treatment and if it does, antispasmodics for 5 days generally resolve the problem. Rarely has the antibiotic to be stopped and vaginal candidiasis, rare in children, usually responds to conventional treatment.

**Topical therapy.** Most effective topical therapies for acne will produce a low grade primary irritant dermatitis in most patients. The patient must be told of this redness and scaling that often occurs in the first few weeks of treatment; otherwise he will stop the therapy prematurely. This primary irritant dermatitis will get less with the continued use of the product and, again, this must be stressed to the patient.

### Surgical therapy

Large blackheads can be removed using a comedone extractor, but many patients find adequate removal difficult. Some nodules may fuse to form cysts which are multilocular, and therefore can be drained only with difficulty. Two other treatments are possible: the lesion can be infiltrated with 0.01 ml fluorinated steroids, but a better treatment is the application of liquid nitrogen for two cycles of 15 seconds. Surprisingly this is not painful.

Although scarring can occur in young teenagers, scarring is more related to acne severity and duration. To prevent psychological trauma (unquestionably a common problem in youngsters) and dermal scarring, active and early treatment is essential. All these treatments are based on a logical consequence of the aetiology of acne, and are safe and successful. Furthermore, although not curative, they probably prevent the disease from progressing and the paediatrician could and should play a major role in preventing the ravages of moderate and severe acne by early and sustained treatment.

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