An overview of acne vulgaris

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Acne vulgaris (common acne) is the most common disease seen by dermatologists (Lookingbill and Marks, 2000). It is a chronic inflammatory condition of the pilosebaceous units (Oprica et al, 2002). Its hallmarks are multiple lesions ranging from non-inflamed comedones (blackheads) to inflammatory papules, pustules, nodules and cysts (Lookingbill and Marks, 2000). Although not fatal, acne is often persistent and patients with acne report that it has a high psychological impact (Oprica et al, 2002). Mild acne vulgaris is almost universal at some time during the second decade. Research shows that girls develop acne 2–3 years earlier than boys and boys have rather more persistent lesions (MacKie, 2001). Most acne sufferers have a very mild form that can be managed with proprietary preparations but a small proportion require help from a GP, and an even smaller group require specialist referral. There appears to be a rising number of older patients, usually women, in the third decade who have mild but stubborn acne persisting for over 10 years (MacKie, 2001).

Causes

The aetiology of acne vulgaris is unknown, although several factors seem to be involved (Oprica et al, 2002; Wilkinson and Shaw, 1998):
- Genetics;
- Abnormal sebum production;
- Androgenic (and to some degree progesterogenic) stimulation;
- Colonisation of pilosebaceous unit with Propionibacterium acnes;
- Obstruction of the sebaceous duct;
- Inflammation.

Ashton and Leppard (2005) agree that genetic factors are important in determining the severity, duration and clinical pattern, and Oprica et al (2002) state that if both parents had acne, the chance of the child having acne during adolescence is increased.

Several key features may contribute to the final picture, although they do not explain every aspect of the disorder (Graham-Brown and Burns, 2003) (Box 1). In simple terms, there is a marked increase in sebum production at puberty. The rate of excretion of sebum is controlled by tissue and androgens, which appear in significantly greater quantities at puberty.

Acne vulgaris

The most common type of acne is acne vulgaris (Graham-Brown and Burns, 2003). Mild to moderate acne vulgaris consists of the spots such as blackheads, whiteheads, papules and pustules. The first physical sign is that the skin on the face and upper trunk become very greasy due to an increase in sebum, which is normal at puberty but excessive in those with acne (Graham-Brown and Burns, 2003).

The characteristic lesion is the comedone, which presents as a dark, follicular plug (blackhead), or as a small cyst (closed comedone) (Wilkinson and Shaw, 1998). These lesions develop into papules and pustules, mainly on the forehead, nose and chin. In more severe cases the entire face with the exception of periorbital skin may be affected, often with additional involvement of the upper chest and back. These sites are densely populated with well-developed sebaceous glands (MacKie, 2001).

Generally acne is associated with clinical signs of sebaceous secretion and a greasy facial skin and scalp. Many females with acne notice premenstrual deterioration of lesions. If acne has been severe and persisted for some time leading to rupture of pilosebaceous follicles, there may be scarring. With modern methods of treating acne this should be prevented by prompt treatment (MacKie, 2001).

Variants

Topical acne affects young Caucasians in a hot, humid environment such as the Far East. They develop gross acne lesions, mainly on the trunk, which can be...
Disabling and resistant to all therapy other than return to a temperate climate (MacKie, 2001).

Steroid acne appears in some patients on systemic steroid therapy. This acneform eruption tends to affect the trunk rather more than the face and, although papules and pustules are present, comedones are notably absent (MacKie, 2001).

Chemical acne is due to cutting oils and chlorinated hydrocarbons. This acneform eruption is usually seen in those who handle such substances at work. They develop some lesions on atypical sites, such as the legs, due to protracted contact with oil in saturated working clothes (MacKie, 2001).

Chloracne, a very disfiguring disorder, is fortunately rare. Dioxin and chlorinated hydrocarbons are absorbed by the body, and cause an acneform eruption, characterised by large numbers of occluded whiteheads and inflamed cysts. These may persist for many months after only transient exposure (MacKie, 2001).

Infantile acne is a true variant in which acne lesions are seen in male infants, usually aged 3–12 months. If severe, endocrine studies should be undertaken to exclude an androgen-secreting lesion. There is some evidence that infants affected are prone to develop severe lesions in the teenage years (MacKie, 2001).

**Diagnosis**

Diagnosis of acne is usually easy but comedones must be present before it is made (Ashton and Leppard, 2005). Comedones, papules, pustules, nodules, cysts and scars on the face or trunk of a young person are unique to acne but occasionally folliculitis or even a common form of eczema may mimic acne (Ashton and Leppard, 2005).

**Psychological and physical effects**

The major complication of acne is its psychological effects, which can be devastating (Lookingbill and Marks, 2000) and are the major reason why patients seek treatment (Aeling, 1996). Acne can make life miserable and its predilection for people in their teens and 20s means that it affects those least well equipped to cope (Graham-Brown and Burns, 2003). Acne patients often have low self-esteem and feelings of inferiority, anger, depression, frustration and embarrassment. Academic performance may be poor (Aeling, 1996). The face is prominently involved and, in adolescence, the face assumes increasing importance as self-image develops (Graham-Brown and Burns, 2003).

Scars can compound and perpetuate a poor self-image long after the acne has remitted. Scars are difficult to treat. Dermabrasion, laser ‘resurfacing’, chemical peels and surgery have been used with varying results. As it is easier to prevent than treat scars the emphasis is on early and aggressive medical therapy (Lookingbill and Marks, 2000).

It is important to realise that the psychological impact of acne is not necessarily related to the degree of severity as perceived by an outsider. A young person may spend just as long staring miserably into the mirror when there are only a few spots as when there are hundreds (Graham-Brown and Burns, 2003). Suicides have been reported.

Regarding severity, for patients seeking help (even those with apparently mild disease), the disease is important and deserves serious attention. Patients are not impressed with soothing advice that trivialises their disease and reassures them that they will eventually ‘outgrow’ it (Lookingbill and Marks, 2000).

**Patient education**

The most important aspect of a successful acne treatment programme is patient compliance (Lookingbill and Marks, 2000). Instructions should be given both verbally at the time of the patient’s initial visit and on a written take-home sheet that reinforces what was said (Lookingbill and Marks, 2000). Patients will best be able to comply if medications used are only twice daily so the medication schedule can be centred on an established daily habit such as brushing of teeth (Lookingbill and Marks, 2000). At the initial visit, answers can be given to several common questions such as ‘what has been prescribed?’ and ‘why have these drugs been chosen?’ and ‘what is the basic working principle of this treatment?’ (Lookingbill and Marks, 2000). It is important to explain that compliance with treatment is essential if the best results are to be achieved.

**References**


Guided reflection

Use the following points to write a reflection for your PREP portfolio:

- Outline where you work and the relevance of this article to your practice;
- Identify the last time you came across a patient with acne;
- Discuss something new you have learnt about acne in this article;
- Explain how this information could have informed your care of the patient with acne;
- Outline how you intend to disseminate what you have learnt among your colleagues.

KNOWLEDGE

REFERENCES


Questions (often unasked) that acne patients or their parents frequently have regarding the following:

- Diet – some evidence indicates that a ‘Western’ diet may have an adverse effect but specific foods have not been implicated. For most patients, a sensible diet is all that is suggested (Lookingbill and Marks, 2000);
- Cleaning – acne is not a result of poor hygiene. In general, acne cleansing agents are not recommended because they cause irritation that unnecessarily compounds the irritation from the recommended topical comedolytics (Lookingbill and Marks, 2000);
- Cosmetics – if cosmetics are used, they should be water based and used sparingly (Lookingbill and Marks, 2000);
- Picking – in many people with acne, much of the skin damage is self-inflicted. The temptation to squeeze a pustule may be overwhelming but should be discouraged as it can produce more tissue damage, sometimes causing scars (Lookingbill and Marks, 2000).

Management

Acne presents in many forms and variations, classified according to predominant lesion types and is graded as mild, moderate or severe. Aeling (1996) lists these as:

- Comedonal acne (mildest form without inflammation);
- Inflammatory acne (mild papulopustular acne);
- Scarring papulopustular acne;
- Nodular or scarring acne.

The approach to treatment must be tailored to the individual (Graham-Brown and Burns, 2003) and depends on many factors: history, acne severity, psychological impact, evaluation, cost-effectiveness and benefit-risk assessment (Oprica et al, 2002).

The aims of the treatment are to clear the spots and to prevent scarring. Treatment works by:

- Unblocking blocked pores;
- Destroying the P. acnes bacteria;
- Reducing inflammation;
- Reducing the amount of sebum that is produced.

When treating, it can be useful to consider acne in three broad severity bands: mild, moderate and severe (Graham-Brown and Burns, 2003).

Mild acne

Mild acne consists of comedones and/or only a few papulopustular lesions restricted to the face. First-line treatment is topical therapy, which may suffice (MacKie, 2001). An antibiotic/benzoyl peroxide combination may be useful. Topical applications are clear and odourless, so acceptable by both sexes (MacKie, 2001).

Moderate acne

Patients with extensive facial acne, or those who have not responded to topical therapy, should have a 4-6 month trial of a systemic antibiotic (MacKie, 2001). Systemic therapy is needed for more acute patients referred for specialist opinion, and oral retinoids for patients with severe persistent acne who have not responded to first-line systemic treatment (MacKie, 2001). A combination of a topical agent and oral oxytetracycline or erythromycin is given twice daily.

The mode of action of systemic antibiotics in acne is not understood. While a part of their action may be in reducing the P. acnes colonisation of pilosebaceous follicles, it is also postulated that they may affect chemotaxis of polymorphonuclear leucocytes and thus reduce inflammatory response (MacKie, 2001). If the response is not satisfactory, the acne should be managed as severe acne.

Severe acne

Severe acne presents as widespread papulopustular lesions and/or nodulocystic lesions and/or systemic symptoms of moderate severity that fail to settle within six months of treatment, or acne of any severity with significant psychological upset. Systemic antibiotics may control the acne but this degree of acne often demands more aggressive treatments. Girls may respond to cyproterone acetate with or without antibiotics, allowing at least six months for a response.

This type of acne can now be well controlled in almost all cases by the use of isotretinoin, a synthetic retinoid given systemically (MacKie, 2001). In the UK, this drug is only available on hospital prescription and a course is usually for four months but this can be extended or repeated after 12 months (MacKie, 2001).

One of the most serious problems with isotretinoin is teratogenicity. It is therefore essential that females understand that pregnancy is absolutely contraindicated.

Acne scarring

In some patients, scarring has developed before the patient seeks medical advice. In such cases, once all acne activity has ceased, it may be possible to reduce scarring by chemical peeling or dermabrasion but good results cannot be guaranteed (MacKie, 2001).