

ACNE VULGARIS MANAGEMENT – THE NEED FOR A PATIENT-CENTRED APPROACH

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INTRODUCTION

Acne is often trivialised as a minor self-limiting disease affecting adolescents. It is important to remember that acne is actually a chronic skin disease, that if not properly managed, can leave permanent physical and psychological scars. The majority of patients present themselves to primary care physicians, often after unsuccessful attempts of self-medication or treatment by non-medical therapists.

The pathophysiology of acne is relatively well understood compared to many other diseases. We have also made significant advances in acne therapy. Treatment options are plentiful and highly effective. Unfortunately, there are still many patients who suffer from severe scarring as a result of sub-optimal treatment. Applying the principles of chronic disease management and adopting a patient-centred approach may result in better treatment outcome.

Pathophysiology of Acne

Acne is a chronic inflammatory disease of the pilosebaceous unit. It is a multifactorial disease but the pathways to the end is the same. The pilosebaceous follicle produces an excessive amount of sebum. There is abnormal keratinization of the follicular epidermis which results in an impacted mass of keratin and sebum. *Propionibacterium acnes* which is a normal skin bacteria proliferates disproportionately. Inflammation of the gland results. The exact cause of the inflammatory process is still uncertain. However, all the features mentioned probably facilitate the process.

Assessment

The purpose of assessment is to provide information to determine the most appropriate mode of therapy. Non-inflammatory lesions include the open comedone, closed comedone and the non-inflamed papule. Inflammatory lesions include pustules, papules, nodules and cysts. Inflamed lesions especially large nodules and cysts are hallmark of severe disease. Presence of inflamed lesions generally indicate that permanent scarring is likely and treatment should be prompt and vigorous to prevent the complication of permanent scarring. Scarring in acne take the form of abrupt defects caused by decreased collagen which are described as ice-pick scars. Keloids can occur in susceptible individuals. It is important to take this into consideration when deciding how aggressively the patient need to be treated. A search should be made of keloids in other parts of the body. BCG vaccination scar can be helpful in estimating the scarring potential of the patient. Acne can also leave unsightly post-inflammatory pigmentation.

As the treatment progresses, the features of the disease and the severity changes. A system of grading the severity of the problem enables monitoring of the condition. There are many systems of grading and assessment. The most well thought out is perhaps that described as the Leeds technique¹. The severity of acne is graded from 0.1 to 8.0 based on the degree of inflammation and the extent of the disease. The patient's severity is compared against a chart of 16 photographs illustrating the various grades. Many physicians have their own system of grading and classification which are just as effective as long as they can apply it consistently. Use of photographs as a monitoring tool is advantageous because both the patient and the physician can monitor the progress together.

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Good clinical photographs require photographic skill, expensive equipment and patient consent. Poorly exposed pictures with amateur lighting equipment can produce pictures that are inconsistent. This may sometimes confuse and hinder the monitoring process.

Less common causes of acne should be ruled out in the initial assessment of all cases. Every physician should have a quick and simple system of going through the possibilities. Environmental factors like exposure to pollutants and work-related substances must be considered. Use of inappropriate cosmetics and facial products may aggravate or trigger an exacerbation of acne. Medication like oral contraceptives and steroids are well known causes of acne. Endocrine disorders such as Cushing's Syndrome and conditions of androgen excess like polycystic ovaries can cause acne.

The impact of the condition on the patient as an individual should also be assessed. This aspect is frequently neglected and the cause of treatment failure. The idea, concerns and expectation of the patient should be elicited. As in any chronic disease, helping the patient to come to an understanding of the disease and the treatment plan would greatly improve compliance and the final outcome.

SEBORRHOEA

Excessive oiliness must be managed by using an effective but mild cleanser. There are many facial cleansers available over the counter. Help the patient to choose a cost-effective cleanser. Generally a good cleanser should be mild so that repeated washing in the course of a day would not result in excessive dryness or irritation. A good cleanser should also have a minimum of

unnecessary additives such as unproven herbs, colouring and perfume.

Abnormal Keratinization/Obstructed Sebaceous Gland

Comedolytic agents is one of the most frequently used mode of treatment in many over the counter-product. Elemental sulphur and resorcinol have been used with some success but presently probably the most effective agents are tretinoin and benzoyl peroxide. Many novel and unproven products are best used with caution if at all. Many "scrubs", adherent pads may be psychologically appealing. However they may add to the injury of the inflamed skin.

Benzoyl peroxide is available in variable strengths from 2.5% to 10%. It is also delivered in different vehicles. There are aqueous gel, alcohol gel, oil-based lotion and even as a wash. It is also available in combination with erythromycin. Use what the patient finds acceptable. Remember that up to 3% of patients may develop skin irritation and it can also bleach clothing. Start from a low concentration and increase if necessary. Benzoyl peroxide also has bactericidal effects and may inhibit sebum production.

Tretinoin works by increasing epidermal cell turnover and decreasing the cohesiveness of cells in the stratum corneum. Theoretically, it also helps the penetration of other topical medication by decreasing the thickness of the stratum corneum. It is available in strengths of 0.01%, 0.025%, 0.05%, and 0.1% in creams and gel. The main problem with the use of tretinoin is its irritant effect. It causes photosensitivity and should only be used at night. Sunscreen use should be encouraged. It can cause excessive skin dryness and extra caution against use of strong facial

cleansers must be emphasised. Explain that a mild flush and a gentle peeling is not only acceptable but an indicator of effectiveness. Also forewarn the patients that the acne may flare-up transiently in the first few weeks of treatment. It gives excellent results if the patient can comply with the precautions and does not react badly to its irritant effects.

Propionibacterium acnes Proliferation

This aspect of the disease is managed by the use of either topical or systemic antibiotics. Benzoyl peroxide which is a comedolytic agent has anti-bacteria action as well. Besides direct anti-bacterial action, suppressing sebum production also decreases the activity of *P. acnes*.

Clindamycin and erythromycin in topically applied forms are equally effective and easy to use. They are prepared as lotion or gels. All topical antibiotics should be applied twice daily after the face is cleaned and dried. A small fraction of the applied clindamycin is absorbed. Pseudomembranous colitis is a very small risk. Erythromycin is also available in combination with 5% benzoyl peroxide.

Systemic antibiotics are usually used when inflammatory lesions are prominent and more extensive. Besides the anti-bacteria action, systemic antibiotics also act directly to suppress the inflammatory mechanism. It must be remembered that tetracyclines cannot be used in pregnancy. Since the duration of therapy is long, especially when there are relapses, be mindful that the patient's child-bearing plans may change over time. Female patients should also be counselled that the effectiveness of oral contraceptives may be reduced by oral antibiotics.

Tetracycline 500mg bid should be taken on an

empty stomach. Antacids, calcium tablets and dairy products interact with tetracyclines and they should not be taken together. When signs of improvement are obvious, the patient should be put on a maintenance dose which is usually between 250mg to 500mg per day. Doxycycline and minocycline cost more but they can be taken with meals and are better absorbed. Doxycycline may be more likely to cause photosensitivity. Minocycline has the advantage of being less likely to cause *Candida vaginitis*. It has no cross-resistance with tetracycline and doxycycline. Minocycline is very useful in situations when treatment failure is due to antibiotic resistance². Antibiotic resistance appears to be an increasing cause of primary and secondary treatment failures with antibiotics.

Erythromycin 500mg bid is also effective and the patient can be maintained on 250mg to 500mg per day when the response is satisfactory.

Antibiotics other than the tetracyclines and erythromycin are seldom used except in situations when drug allergy, intolerable side-effects and drug resistance preclude the use of the tetracyclines or erythromycin. Clindamycin, cotrimoxazole, trimethoprim, cephalosporins, amoxycillin have all been shown to be effective in various degrees. Cephalosporins and amoxycillin have the advantage of being safe in pregnancy

Suppressing the sebaceous glands

The advent of isotretinoin effectively enabled us to treat the disease at its root which is the hyperactive sebaceous gland. The exact mechanism of action is unclear but it inhibits sebum production to as low as 10% of pre-treatment levels. Interestingly, many patients remain well after completion of the course of treatment, despite

the resumption of pre-treatment sebum production rate.

Limitation to the use of this very effective agent is the concern about the potential toxicity of isotretinoin and the high initial cost. Isotretinoin is highly teratogenic. Female patients with child-bearing potential should have pre-treatment pregnancy test. The teratogenic risk must be strongly emphasised. They must take precaution against pregnancy throughout the duration of therapy and one month after discontinuing treatment. Both male and female patients must be warned not to give the medication to friends. For medico-legal protection, the warnings should be reinforced in writing and acknowledged by the patient. Male patients taking tretinoin do not carry the risk of teratogenicity to their offspring. Isotretinoin may cause transaminase to be raised and very rarely cause hepatitis. Total cholesterol and triglyceride may also be raised especially in pre-disposed individuals. These are reversible. Whether the determination of pre-treatment blood levels is useful is debatable. Less dangerous but more common and disagreeable side-effects are dryness of the skin, lips, mouth and conjunctiva. Patients should be warned to anticipate such symptoms and take precautions such as using lip balm and avoiding contact lens usage. Use of tetracycline with isotretinoin is contraindicated as it can result in raised intracranial pressures. Concurrent use of oral contraceptives have no known interactions and may be desirable if there is a risk of pregnancy during treatment. Vertebral hyperostosis have occurred in patient using doses higher than what is recommended for acne. The clinical significance of this is still unknown. The

possible adverse effect on bone development make isotretinoin unsuitable for children.

Having weighed the risk of isotretinoin, we should consider that isotretinoin is highly effective. With adequate dosage, response rates above 90% can be achieved even in severe cases and most patients remain in remission long after treatment is discontinued. For those who respond, most can expect at least an 85% clinical improvement as measured on a clinical scale of severity³. The initial dose is 0.5mg-1.0mg/kg bodyweight. The treatment period is 4 to 5 months. Many side-effects are dose-related and this led many physicians to use a lower dose. The initial concern of higher recurrence rates can be overcome by prolonging the duration of treatment. It appears that it is the total dose delivered that determines effectiveness and the risk of recurrence. The recommendation now is to try to achieve a cumulative dose of >100 to 120mg/kg⁴. In the beginning, isotretinoin is only recommended in severe nodulocystic acne. There is a trend now to use it at a less severe stage of the disease. The long term effectiveness of isotretinoin may make up for its lower safety profile and higher cost. A short expensive course of isotretinoin may be much less costly compared to years of conventional therapy with relapses and the risk of scarring.

Treating underlying causes if any
Anti-androgens like cyproterone and spironolactone may be helpful in cases where there is androgen excess. Acne caused or aggravated by oral contraceptive pills may improve if they are switched formulations that do not contain norgestrel and norethindrone. Removal of possible comedogenic environmental factors such as friction, heavy oils, tar and polyvinyl chloride is

also an important adjunct to any treatment modality. A hot humid environment can aggravate the condition especially if the change in environment is sudden. The need to manage any underlying endocrine diseases such as Cushing's syndrome and polycystic ovaries are obvious priorities.

Management of complications

Most patients are troubled psychologically by acne. It affects their self-image and self-esteem. They may also suffer from the insensitivity and prejudice of people around them as a result of acne. Even doctors who treat acne may be insensitive to the suffering and the psychological distress of their acne patients⁵. Despite all that, most patients cope well but those who are prone to emotional disorders or already have low self-esteem need counselling and social support.

The physical scars of acne are difficult to treat and results are poor even in the best of hands. Prevention with prompt optimal treatment is perhaps the only meaningful way available. Large cystic lesions and abscesses almost always end up with some degree of scarring. Intralesional steroids hastens recovery and may prevent major scars. Once scars are formed there are few modalities of treatment. Superficial peeling with alpha-hydroxy acid and deep peels with acetic acid can make superficial scars less prominent. Laser skin resurfacing can also improve scars. However, results are highly variable from person to person. Anecdotal before and after treatment pictures may create unrealistic expectations. Furthermore,

certain skin types common among Asians are prone to post-treatment hyperpigmentation which may be cosmetically worse than acne scar. If treatment of scars is to be contemplated, it should be done after the acne process has run its course. Treatment regime is also prolonged and costly. Risk and benefits must be weighed carefully.

CONCLUSION

A patient-centred approach aims to reduce failure by customising the treatment according to the effect that the illness has on the patient. We should try to minimise physician preference or textbook prescriptions which cater for the general population and not to the specific patients. Prescribing a treatment regime that is appropriate to the lesion type and severity is not enough. The treatment must be in the form that the patient can accept and comply with.

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