ANTIBIOTIC-RESISTANT ACNE VULGARIS TREATED WITH ORAL ISOTRETINOIN IN A PATIENT WITH THALASSEMIA MINOR

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ABSTRACT

Acne vulgaris is very common among adolescents and young adults. Permanent scarring, poor self-image, depression, and anxiety can result from it. The acne treatment options include topical therapies, systemic agents, physical modalities, lasers, photodynamic therapy or combinations. Oral isotretinoin is widely recognised as a very effective treatment for severe acne. However, it may cause adverse effects.

We report a case of an 18-year-old man affected by thalassemia minor treated with oral isotretinoin because of a severe form of acne unresponsive to conventional oral antibiotic therapy. During the treatment clinical and biochemical evaluations were closely monitored each month in order to discover potential adverse effects of isotretinoin and the impact over thalassemia. After 9 months of oral isotretinoin application we can tell that the drug was well tolerated by the patient, the acne totally cleared, and the thalassemia did not deteriorate.

In conclusion, although a highly effective drug, isotretinoin use is limited by its side effects. However, patients may accept these procedures to improve the psychosocial effects of acne, because it can target all aspects of acne pathology. Something else, it is the choice of treatment in antibiotic-resistant forms of acne. It has been seen that the oral isotretinoin could be successfully used in patients with severe acne suffering from thalassemia minor in which the antibiotic treatment failed with the explicit requirement for strict clinical and biochemical follow-up.

Keywords: *acne vulgaris, oral isotretinoin, thalassemia minor*

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INTRODUCTION

Acne vulgaris (AV), a chronic inflammatory disease of the pilosebaceous unit, is a commonly diagnosed inflammatory skin condition that affects more than 80% of teenagers but also adults. Although acne is not physically disabling, its psychological impact can be striking, contributing to low self-esteem, depression, anxiety and lower quality of life (1-3). As a result, there is a significant need for ef-

fective therapy. The acne treatment options include topical therapies, systemic agents, physical modalities, lasers, photodynamic therapy or their combinations. Oral isotretinoin is widely recognised as a very effective treatment for severe acne but with many adverse effects.

A patient with thalassemia minor and with antibiotic-resistant acne vulgaris treated with oral isotretinoin is the focus of this case report. The individual's acne lesions found over the face, chest and back were presented by erythematous and pigmented macules, papules, pustules, nodules, pseudocysts, cysts, and scars.

DISCUSSION

Acne vulgaris is an inflammatory disorder of the pilosebaceous unit, which runs a chronic course. Acne vulgaris is triggered by *Cutibacterium acnes* in adolescence, under the influence of normal circulating dehydroepiandrosterone. It is a very common skin disorder, which can present with inflammatory and non-inflammatory lesions chiefly on the face but can also occur on the upper arms, trunk, and back.

Although acne is not physically disabling, its psychological impact can be striking. Adolescent patients have reported low self-esteem, symptoms of depression and anxiety, and lower quality of life. As a result, there is a significant need for effective therapy. The acne treatment options include topical therapies, systemic agents, physical modalities, lasers, photodynamic therapy or their combinations. Acne medications work by reducing oil production, speeding up skin cell turnover, fighting bacterial infection or reducing inflammation — which helps prevent scarring. They depend on the age, the type and severity of the acne, as well as the possibility of scarring. An interesting fact is that the therapeutic activities for acne have changed little in the last decade (4). Recognition that acne is an inflammatory condition, not an infectious one, has led to a call for reduction in antibiotic use, which has culminated in a re-evaluation of nonantibiotic choices. There are a number of effective agents for topical treatment of mild to moderate acne. Spironolactone and oral contraceptives have become more acceptable first-line choices, and earlier use of isotretinoin has been proposed (4), especially in cases of severe, therapy-resistant acne (5).

The drug isotretinoin (13-cis-retinoic acid) is derived from vitamin A. It is available for topical and oral administration. Oral isotretinoin was approved by the US Food and Drug Administration for nodulocystic acne in 1982 and introduced into the United Kingdom in 1983 (6). Since then, it has revolutionised the treatment of acne and, three decades later, remains the most clinically effective anti-acne therapy according to physicians' opinion (7). It is effective in resolving acne and improving quality of life (8) and is better in reducing lesions than other agents such as oral antibiotics and topical combinations (9). Isotretinoin is used as 0.5 mg/kg to 1 mg/kg body weight in daily or weekly pulse regimen. It controls sebum production, regulates pilosebaceous epidermal hyperproliferation, and reduces inflammation by controlling *C. acnes*.

Although a highly effective drug, oral isotretinoin use is limited by its many and diverse side effects. Some of them are dry mucous membranes, muscle pain, and headaches. The teratogenic effects are many, including, but not limited to, spontaneous abortions and abnormalities of the face, cardiovascular system, and parathyroid glands. Serum triglycerides and liver enzymes may increase with use. In addition, blood dyscrasias may occur. Controversial evidence regarding the rare adverse events related to isotretinoin such as inflammatory bowel disease (IBD), suicidal ideation, and suicide.

CASE PRESENTATION

We report a case of an 18-year-old person affected by thalassemia minor diagnosed in early childhood and treated with oral isotretinoin because of a severe form of acne unresponsive to conventional oral antibiotic therapy. Doxycycline therapy was the first choice given orally at a daily dose of 100 mg for 3 months associated with topical benzoyl peroxide and adapalene. The decision to start with an antibiotic and not with isotretinoin was based on the presence of thalassemia minor that has the potential to affect the liver and bones.

Thalassemia is an inherited blood disorder in which the body makes an abnormal form of hemoglobin. The disorder results in excessive destruction of red blood cells, which leads to anemia and symptoms as bone deformities (especially in the face), dark

Fig. 1. During the therapy

urine, delayed growth and development, excessive tiredness and fatigue, and yellow or pale skin.

The response to the applied antibiotic treatment was not good, and the patient presented with an increased psychological acne-related disturbance (APSEA score value of 115/139; score significance: very high). Then treatment with oral isotretinoin was discussed and started after careful evaluation of all the positives and negatives. Our decision for this treatment was based on the guidelines of the American Academy of Dermatology (AAD) that states that isotretinoin is effective in severe nodular acne or other stages of disease severity where first-line treatments have failed. Something else the EuroGuiDerm Guidelines give the highest recommendation to using oral isotretinoin in both severe papulopustular/moderate nodular acne and severe nodular/conglobate acne. Another argument in favor was the literature data that showed that there is accumulated experience with oral isotretinoin treatment in patients even with thalassemia major with excellent results (10).

Fig. 2. During the therapy

The pretreatment laboratory screening of our patient was needed (11) and it showed no deviations. Isotretinoin was given for one month at an initial dosage of 0.5mg/kg/day in two divided doses to minimize the risk of adverse events. Then after new biochemical evaluation and results within the reference limits the dose was increased to 1 mg/kg/day for some weeks (10-12) until good response to the treatment was seen. Afterwards very slow discontinuation of the medication was done for some months.

Taken with food, the typical dosage of oral isotretinoin is 0.5–1 mg/kg/day for about 20 weeks or a cumulative dose of 120 mg/kg (13). An initial dosage of 0.5 mg/kg/day given in two divided doses may minimize the risk of adverse events. The suggested cumulative dose over 20 weeks should be 120–150 mg because smaller or larger dosages can increase the risk of relapse and adverse effects, respectively. For severe papulopustular acne, the EDF guidelines recommend 0.3–0.5 mg/kg/day continued for at least 6 months; this recommendation is based on expert opinion rather than on available evidence, which was

deemed conflicting and limited in determining the best dosage (14). Lower doses (0.1–0.2 mg/kg/day) might lessen the incidence of adverse effects, but the duration of use would be prolonged.

In our patient, during all the treatment period each month, clinical, biochemical (lipid panel, liver function tests, blood cell count, ferritin concentration, coagulation assessment, calcium and parathyroid serum levels) and bone densitometry evaluations were closely monitored in order to discover possible adverse effects of isotretinoin potentially causing imbalance in the patient's basic health and because of its primary condition – the presence of thalassemia minor that could be aggravated by the applied therapy. And overall, the drug was well tolerated. Our patient showed no liver and bone disturbances from the very beginning of our treatment until its end. The skin status changed dramatically with disappearance of the different inflammation lesions. Only the scars remained as a witness to the past clinical condition.

CONCLUSION

Although a highly effective drug, isotretinoin use is limited by its side effects. However, patients may accept these procedures to improve the psychosocial effects of acne, because it can target all aspects of acne pathology. Something else, it is the choice of treatment in antibiotic-resistant forms of acne. It has been seen that oral isotretinoin could be successfully used in patients with severe acne suffering from thalassemia minor in whom the antibiotic treatment failed with the explicit requirement for strict clinical and biochemical follow-up.

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