

Improvement of Intractable Acne in a Man Following Testosterone Suppression Using Danazol

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Sometimes, oral contraceptives have been successful in treating resistant cases of acne in girls, probably by reducing testosterone levels (both total and free) by suppressing the pituitary gonadotropins. Danazol is a new agent which also suppresses gonadotropins, but it is an impeded androgen with negligible estrogen effects. It would seem, therefore, a more appropriate drug to treat intractable acne in men since it suppresses testosterone levels.

Presented herein is a twenty-five year old man with severe acne that did not improve after treatment with conventional topical agents and systemic antibiotics. The patient's condition showed considerable improvement after three months of danazol therapy. However, although, the acne remained suppressed while the patient was receiving the medication, when the medication was stopped, the acne returned. Again, the condition was suppressed after the medication was resumed. Other than mild weight gain, no significant side effects were noted in this patient. His libido remained unchanged and no problems with impotence developed.

Danazol may prove to be a useful drug for treating acne especially in postpubertal men in whom the condition does not respond with conventional therapy.

Acne is the most common skin disease.¹ Many types of bacteria, such as *Corynebacterium acnes*, may play a role in the development of acne.² There is some evidence that androgen-induced

sebum production may enhance bacterial proliferation.³ Therefore, some physicians believe that androgens could also contribute to acne formation.^{4,5}

Standard acne treatments include the following: topical agents which can loosen comedones and prevent new ones from developing such as retinoic acid;⁶ antiseptic solutions such as benzoyl peroxide;⁷ or systemic antibiotics such as tetracycline or erythromycin.^{8,9}

In girls with severe acne that does not respond to conventional therapy, oral contraceptives have occasionally been successfully employed.¹⁰ It is hypothesized that oral contraceptives may exert their ameliorative effect on acne by suppressing the luteinizing hormone (necessary for stimulating ovarian testosterone production) and by increasing the concentration of sex hormone binding globulin.¹¹ This would be especially true in hyperandrogen states. Oral contraceptive therapy results in a decrease in the testosterone production rate and in testosterone clearance and in a decrease in the free testosterone level.

Theoretically, boys with severe acne that does not respond to conventional therapy might also benefit from the reduction of their androgen level.

Danazol is an orally active pituitary gonadotropin inhibitory agent devoid of estrogenic and progestational activity. It is a weak impeded androgen.¹² Therefore, it can suppress pituitary hormones without exerting much sex hormone activity. In women, danazol is especially used for the treatment of endometriosis,¹³⁻¹⁶ however, acne may be a side effect due to its weak androgen activity and an increase in free testosterone due to a decrease in sex hormone binding globulin.¹⁷

A twenty-five year old man with severe acne that did not respond to conventional therapy was treated with danazol. The results are presented herein.

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Case Report

A twenty-five year old man with severe acne since puberty, showed a large number of papules, pustules, and nodules on the face, back, and sternum. His problem had been worsening over a six month period. The lesions progressed despite therapy with retinoic acid 0.025 percent gel, topical erythromycin base 2 percent, and tetracycline 500 mg per day. He had been receiving oral tetracycline for two years and the topical agents were added during the last six month period.

Complete history and physical examination were normal with the exception of blood pressure-borderline high at 130/90, the acne as previously described, oily skin, and seborrhea of the scalp.

His baseline serum testosterone level was 568 ng/100 ml while his twenty-four hour urinary 17-hydroxycorticosteroids, 17-ketosteroids, and pregnanetriol levels were all normal at 2.8, 14 and 0.9 mg/24 hours respectively.

He was started on danazol 200 mg four times a day. After three months of therapy there was significant improvement in his condition, with no nodules and only rare papules, pustules, and scars present. Although his serum testosterone level had dropped to 57 ng/100 ml with a luteinizing hormone level of 6.2 and a follicle stimulating hormone level of 7.0 MIU/ml, he was still having normal erections and a semen analysis indicated 82 million sperm per cc, 3cc volume with good motility. His blood pressure remained 138/86. His weight increased from 173 to 182 pounds.

The patient continued to receive danazol 800 mg for fourteen months. During this period his acne remained suppressed. At one point, however, he stopped the treatment and over a six week period his acne resumed to a moderate degree. He was then started on danazol 600 mg and once again the acne was controlled.

Comments

In the case already presented, intractable acne which did not respond to conventional systemic and topical therapy, responded to danazol. Although the exact mechanism of its beneficial effect is unknown, the improvement may have been related to the reduction of androgen levels by this drug. In women, danazol may contribute to producing acne. However, in men, since the drug is an impeded androgen, the marked lowering of the testosterone level by gonadotropin suppression may contribute to the improvement of acne.

Because it suppresses gonadotropins, danazol should not be used in boys with acne who have not reached puberty. In fact, the drug has been used to treat precocious puberty.¹⁸

Probably the most important use of danazol is

for the treatment of endometriosis.¹³⁻¹⁶ In addition it has been used for the treatment of precocious puberty,¹⁸ menorrhagia,¹⁹ fibrocystic disease of the breasts and mastalgia²⁰ and gynecomastia.²¹ The drug may also prove beneficial to postpubertal men with severe acne resistant to conventional therapy as was demonstrated in the case presented herein.

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