Hidradenitis suppurativa (HS) is a chronic inflammatory disorder, usually located in the axillae and genital areas. Histopathologic studies suggest that HS is a disease of the follicles with apocrine involvement as a secondary event, so the term acne inversa has been suggested. In some patients antibiotic and corticosteroid therapy or surgical management can control the disease. Isotretinoin is an effective treatment for acne conglobata, with good long-term results, but the response in HS is less well established. A few investigators have evaluated the effects of isotretinoin on HS, with mixed results. These case reports and the results of studies with small numbers of patients are summarized in Table I.

In an initial report we described our results from administration of low-dose isotretinoin to 21 patients with HS; patients were observed for up to 24 months. In the present study we enrolled 68 patients, including the already mentioned 21 patients, and focused on the response rate, long-term follow-up, and the possibility of a relation between response rate and severity.

**Patients and Methods**

The details of the patients at the start of the study are shown in Table II. In the last 10 years, 68 patients (59 women, 9 men) with long-standing HS were treated with oral isotretinoin as monotherapy for 4 to 6 months, as used in the treatment of acne vulgaris. In women of child-bearing age, effective contraception without antiandrogens such as cyproterone acetate was used throughout the treatment period. The severity of HS was graded clinically according to O’Loughlin et al. as mild, moderate, or severe. Twenty patients (Table III) did not complete the prescribed minimum course of 4 months’ treatment. They dropped out for a variety of reasons including side effects (3 of 20 patients), poor response (7 of 20), a combination of side effects and poor response (7 of 20), and loss of motivation (3 of 20). Table III summarizes the treatment data. Clinical status was judged by both the patients and the physician according to Dicken, Powell, and Spear, and was scored as no change, improvement, marked improvement, or clear, and graded accordingly from 0 to +3.

After the completion of treatment, patients were reexamined up to 6 months later. After this, data on clinical status and subsequent treatment for HS were collected by physical examination, status surveys, or telephone interviews. In our long-term follow-up we could identify an improvement score of +3 (virtually clear), but the remaining scores (+2, +1, etc) could not be scored reliably by the physician or the patient.

Six patients received an intralesional injection of corticosteroid once for an abscess-like swelling during isotretinoin treatment and four after the treatment
remaining 32 patients with a score of +2, +1, or 0 at the end of treatment, an exact score at the end of the follow-up period of this retrospective study was difficult to obtain and of no relevance, because all these patients were dissatisfied with their response.

At the end of the therapy with isotretinoin, none of the patients with severe HS scored +3, compared with 16 patients with mild and moderate forms of HS, a statistically significant difference ($P < .01$, chi-square test). Furthermore, Table V indicates that patients with initially mild forms of HS were more likely to achieve improvement scores of +2 and +3 than were patients with moderate and severe forms; this difference was statistically significant ($P < .05$, Wilcoxon two-sample test).

**DISCUSSION**

The many different therapies used to treat HS indicate an absence of a standard and universally
accepted therapy. Because isotretinoin is effective for acne it seems reasonable to suppose that isotretinoin might also be effective in HS. However, our experience with low-dose isotretinoin as monotherapy in 68 patients over a period of almost 9 years confirms our early impression and previous reports (Table I) that isotretinoin is only moderately effective in the management of HS. Our study lacks a control group treated with antibiotics as a comparison, so no statement as to relative efficacy can be made. However, many patients in our study had not responded to oral antibiotics or surgery, or had relapsed after such treatment. These response rates are less favorable than those achieved in the treatment of acne conglobata. Severe acne conglobata can also be resistant to isotretinoin, because of the multiple, dissecting sinus tracts. Layton et al\textsuperscript{5} confirmed the finding that truncal acne responds less well than facial acne. Why truncal acne and HS respond less well to isotretinoin and antibiotic treatment is unknown. Furthermore, it is known that patients with severe acne relapse more readily.\textsuperscript{5,11} The present study indicated that the response of HS to isotretinoin is also related to the severity of the disease.

It is unlikely that the dose of isotretinoin for HS is important. In the treatment of acne a total cumulative dose of more than 120 mg/kg produces significantly better results than lower dosage regimens.\textsuperscript{5} In our study none of the patients with HS achieved this threshold dose of 120 mg/kg. However, as almost all studies in Table I show, it is doubtful whether higher dosage regimens would produce significantly better results.\textsuperscript{6-8,10}

Plewig and Steger\textsuperscript{3} stated that isotretinoin is, by itself, with rare exceptions, insufficient to stop the disease. Furthermore, these authors advocated surgical intervention as the treatment of choice. They recommended the use of oral isotretinoin because of its antiinflammatory activity during the weeks or months before surgery and perhaps also postoperatively. We agree that surgical treatment is the first choice for all intertriginous lesions. Until recently, wide excisions, well beyond the clinical borders of activity were recommended. The disadvantages of surgery are the often long hospitalization and not always cosmetically acceptable results. However, there are other, relatively simple surgical treatments with excellent results such as the deroofing technique\textsuperscript{13} and CO\textsubscript{2} excision, both with second-intention healing.\textsuperscript{14}

It can be concluded from this study that monotherapy with isotretinoin is of limited value for HS.

**REFERENCES**


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**Table IV. Long-term response of HS to isotretinoin treatment (68 patients)**

<table>
<thead>
<tr>
<th>Response HS</th>
<th>At the end of treatment (4-6 mo)</th>
<th>At the end of follow-up</th>
<th>Mean duration of follow-up and range (mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+3</td>
<td>16 (23.5%)</td>
<td>11 (16.2%)</td>
<td>57 (6-107)</td>
</tr>
<tr>
<td>+2</td>
<td>14 (20.6%)</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>+1/0</td>
<td>18 (26.5%)</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Drop-outs</td>
<td>20 (29.4%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Improvement score: +3 = clear, +2 = marked improvement, +1 = improvement, 0 = no change. NR, No relevance.

**Table V. Responses to isotretinoin therapy in patients with HS of different severities at baseline**

<table>
<thead>
<tr>
<th>Clinical grading of the severity of HS at baseline</th>
<th>Improvement score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>0</td>
</tr>
<tr>
<td>Moderate</td>
<td>5</td>
</tr>
<tr>
<td>Severe</td>
<td>2</td>
</tr>
</tbody>
</table>

Improvement score: +3 = clear, +2 = marked improvement, +1 = improvement, 0 = no change.