

## Treatment of Chancroid with Enoxacin

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Chancroid (ulcus molle) was treated in 7 male patients with enoxacin (2×400 mg/die). Microbiological and clinical examinations proved complete healing in all cases after 7 to 12 days. No side effects were mentioned. Enoxacin seems to be an excellent alternative treatment for this sexually transmitted disease. *Key words: Chancroid-ulcus molle; Enoxacin.* (Received February 11, 1985).

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Enoxacin (CI 919, AT 2266) is a totally synthetic broad spectrum antibacterial agent of the quinolone-azaquinolone class for oral administration. Its antibacterial effect is achieved by inhibition of bacterial DNA-gyrase. The main target organisms are staphylococci and a

variety of gram-negative bacilli, including pseudomonas, gonococci and *H. influenzae* (4, 9, 11).

Chancroid (ulcus molle) is caused by the gram-negative bacillus *H. Unna-Ducreyi*. It occurs mainly in Africa, Central and South America, the Far East and endemically in Turkey (6). Since 1978, a new endemic wave of this genital infection has occurred in large German cities (2, 8). Every year, 5–12 newly-infected patients have been treated in the Dermatology Department of the University Hospital of Hamburg. In the period from 1978 to 1980, three-quarters of the patients were Turks (5). More recently, over half of the patients have been Germans. In 1984, 7 patients were treated for chancroid, of whom were Germans and 2 Turks.

Because of the allergic potential of one of the current drugs of choice, trimethoprim sulfamethoxazole (6), we decided to treat chancroid with the DNA-gyrase inhibitor enoxacin. Informed consent was obtained from the patients.

## MATERIAL AND METHOD

The diagnosis of chancroid was confirmed by taking tissue materials from the border of the penile ulcerations. One part of the material was stained on glass slides and examined by light-microscopy for the presence of the typical chain-like arrangement of the gram-negative bacilli. The remaining material was cultured in rabbit serum and examined after two days for the presence of *H. Ducreyi* (1).

Syphilis was detected by darkfield microscopic examination and repeated TPHA tests. A concurrent gonococcal infection was diagnosed in one patient by means of a chocolate agar culture. General examination disclosed enlarged, painful inguinal lymphatic nodes in 4 of the patients. One of these nodes was more severely inflamed and the overlying skin reddened.

All these patients were treated with oral administration of 400 mg enoxacin twice a day during meals. Treatment was terminated after healing of the lesions. Microbiological examinations were performed after 3, 7 and 14 days.

Dermatological controls, including ESR, erythrocyte and leukocyte counts, liver enzymes, urinalysis, etc., were performed before and after treatment.

## RESULTS

The patients affected by chancroid were all cured in 7 to 12 days so that further treatment with enoxacin was unnecessary. After 3 days, negative microbiological results of tissue samples for *H. Ducreyi* could already be ascertained in five patients. The results for the two remaining patients were negative after 7 days. The penile ulcerations closed after 5–8 days, and the lymphatic nodes regressed. Although the chancroid healed in the first week, the more severely inflamed lymphatic node in one patient, mentioned above, required increase of the enoxacin dose after 7 days to 600 mg twice a day for an additional 5 days.

There was no difference in blood and urinary values before and after treatment. No subjective adverse reactions were noted in any of these patients. As expected, the double infection with *Neisseriae gonorrhoea* was also cured, as confirmed by negative bacterial culture after 3 days.

## DISCUSSION

Enoxacin, a new synthetic DNA-gyrase inhibitor, was examined for effectiveness in chancroid (ulcus molle). In all 7 patients treated, the venereal disease could be cured after treatment periods of 7–12 days. In most cases, the causative pathogen *H. Ducreyi* was no longer detectable after 3 days of enoxacin therapy. No side effects occurred in this small group of patients. However, it is known from the literature that enoxacin interacts with theophylline and raises the plasma concentration of that drug (13).

Among 40 of our own patients treated with enoxacin because of primary or secondary skin infections, one developed severe generalized urticaria and an asthmatic reaction. Other minor reactions may be nausea, dizziness or mild diarrhea (unpublished data).

So far, trimethoprim-sulfamethoxazole, streptomycin or erythromycin (3, 6) have been considered the drugs of first choice. Especially the first two are sometimes complicated by allergic or toxic reactions. Therefore a therapeutic approach was undertaken using enoxacin, which demonstrated a high *in vitro* susceptibility against *H. influenzae* (10).

The results of the microbiological examinations of ulcer material confirm the effectiveness of enoxacin *in vivo*, which correspond to the pharmacokinetic properties of the substance leading to high tissue levels (12).

In the light of this clinical trial, further evaluation of enoxacin in patients suffering from chancroid seems to be promising. The prompt improvement of lesions, quick elimination of infectious material and good compatibility make enoxacin a drug of first choice in this venereal disease.

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