

GONORRHOEA IN 1968

Lars Molin

From the Department of Dermatology, Karolinska sjukhuset, Stockholm, Sweden

Abstract. An analysis is presented of 756 outpatient cases of gonorrhoea (456 males and 300 females) treated at the Department of Dermatology, Karolinska Sjukhuset, Stockholm, in 1968. The standard treatment was 1.0 megaunit aqueous benzyl penicillin and 1.5 megaunit aqueous procaine penicillin given intramuscularly in a single injection to both males and females. This therapy was given in 670 cases. True recurrence of gonorrhoea after this treatment occurred probably in thirteen cases. Primary cures were obtained in 97.6%. No difference was noted between males and females. The "standard" treatment of penicillin used in this study is still regarded as being satisfactory. The importance is stressed of following possible further changes in the penicillin sensitivity pattern of gonococci and the efficacy of the treatment.

During the last decade several studies have been undertaken of the outpatients attending Karolinska Sjukhuset for gonorrhoea, relating the results of penicillin therapy to the sensitivity of the gonococci to this antibiotic (2, 3, 4, 5). The treatment during this period was increased in dosage from 300,000 units of aqueous procaine penicillin in 1957 to 1.0 megaunits of aqueous benzyl penicillin plus 1.2 megaunits of aqueous procaine penicillin in a single session in 1966, i.e. a sevenfold increase. In 1966 primary cures were obtained with this therapy in 99.1% of the patients. Since then the procaine penicillin therapy component has been increased to 1.5 megaunits. The present report deals with those cases treated during 1968.

CLINICAL MATERIAL

The study comprises all outpatient attending the Dermatology Clinic of Karolinska Sjukhuset during 1968 in whom cultures showed the presence of gonococci. The age distribution of the 456 males and 300 females concerned is presented in Table I. The youngest patients were a boy of fourteen and five girls fifteen years of age. Cases were excluded in which direct microscopy of smears indicated the presence of gonococci, but in

which cultures did not confirm the diagnosis—a total of 192 males and 36 females.

The relatively high number of males in the age group 20-24 years relates partly, as in previous reports, to the function of the outpatient clinic as a treatment center for military conscripts in addition to civilians.

METHODS AND PRINCIPLES OF TREATMENT

Direct smears and specimens for culture and gonococcal sensitivity tests were made at each examination from most of the patients. In males specimens were taken from the urethra, in a few cases also from the rectum; in females from the urethra, cervix and rectum.

The smears were stained with methylene blue, in doubtful cases also by the Gram technique, and immediately studied by the examining doctor. The technique of bacterial culture and of sensitivity testing and the criteria used in the bacteriologic diagnosis were the same as in earlier reports (1).

The standard treatment during 1968 was 1.0 megaunits of aqueous benzyl penicillin plus 1.5 megaunits of aqueous procaine penicillin given intramuscularly in a single injection to both males and females. The change from the 1966 therapy was made both to increase the penicillin dosage and for a practical reason, i.e. ease of injection of the whole dosage. The efficacy of the therapy was checked by the weekly examinations. Routine procedure comprised three follow-up examinations in male patients and four in females.

RESULTS

History of previous episodes of gonorrhoea was recorded in 33% of the male and 16% of the female patients (Table II). The time between the occurrence of the first symptoms and the first medical consultation is shown in Table III. The stated interval between presumed exposure to infection and onset of symptoms is summarized in Table IV. It is noted that the interval was estimated as more than three weeks in as many as twenty cases.

Table I. *Age and sex distribution of cases*

| | < 20 | 20-24 | 25-29 | 30-40 | > 40 | Total |
|---------|------|-------|-------|-------|------|-------|
| Males | 44 | 246 | 111 | 46 | 9 | 456 |
| Females | 105 | 115 | 43 | 23 | 14 | 300 |
| Total | 149 | 361 | 154 | 69 | 23 | 756 |

The results of cultures compared with microscopy of stained smears are presented in Table V. The sensitivity to penicillin of the gonococci isolated is shown in Table VI. The number of primary cures following the standard treatment is given in the various sensitivity groups. Table VII further identifies the initial treatment and reasons for failure. Complications of gonorrhoea, such as shown in Table VIII, were treated with higher dosage and/or prolonged administration of "standard" penicillin—or other varieties of penicillin combined with other antibiotics. Tetracyclines were given to patients with a history of hypersensitivity to penicillin. Sulphonamide was used in one case in whom coexistent syphilis was suspected. Cases with salpingitis were managed

in collaboration with the Gynecology and Obstetric Clinic of the hospital.

The cure rate after a single injection of the indicated therapy among patients with information on strain sensitivity to penicillin was 97.6%. No difference between the sexes was noted.

Only two side-reactions to penicillin therapy were noted (shock and urticaria).

DISCUSSION AND COMMENTS

The aim of the present study was to analyze the results of the gonorrhoea therapy, comparing the composition of the material and the efficacy of treatment.

The primary cure rate in 1968 was 97.6%.

Table II. *Number of previous gonorrhoeal infections*

| | 0 | 1 | 2 | 3 | 4 | > 4 | Not known | Total |
|---------|-----|-----|----|----|----|-----|-----------|-------|
| Males | 250 | 93 | 31 | 8 | 15 | 4 | 55 | 456 |
| Females | 208 | 42 | 4 | 2 | 0 | 0 | 44 | 300 |
| Total | 458 | 135 | 35 | 10 | 15 | 4 | 99 | 756 |

Table III. *Number of days between first symptom and first medical consultation*

| | No symptoms | 1-3 | 4-7 | 8-14 | 15-21 | 22-28 | > 28 | Not known | Total |
|---------|-------------|-----|-----|------|-------|-------|------|-----------|-------|
| Males | 35 | 181 | 167 | 36 | 2 | 2 | 11 | 17 | 456 |
| Females | 129 | 15 | 25 | 8 | 4 | 4 | 11 | 96 | 300 |
| Total | 164 | 196 | 192 | 44 | 6 | 6 | 22 | 113 | 756 |

Table IV. *Number of days between presumed exposure to infection and onset of symptoms*

| | No symptoms | 1-3 | 4-7 | 8-14 | 15-21 | 22-28 | > 28 | Not known | Total |
|---------|-------------|-----|-----|------|-------|-------|------|-----------|-------|
| Males | 35 | 150 | 142 | 57 | 10 | 3 | 5 | 54 | 456 |
| Females | 129 | 8 | 20 | 14 | 7 | 1 | 11 | 110 | 300 |
| Total | 164 | 158 | 162 | 71 | 17 | 4 | 16 | 164 | 756 |

Table V. Results of direct microscopy and culture

| | Pos. culture and pos. smear | Pos. culture and neg. smear | Pos. culture without smear | Total |
|---------|--------------------------------|--------------------------------|-------------------------------|-------|
| Urethra | | | | |
| Males | 388 | 64 | 4 | 456 |
| Females | 54 | 121 | 55 | 230 |
| Cervix | 63 | 124 | 66 | 253 |
| Rectum | | | | |
| Males | 0 | 7 | 0 | 7 |
| Females | 8 | 116 | 25 | 149 |

Table VI. Sensitivity of gonococci to penicillin: first positive culture

| | Minimum inhibitory concentration u. penicillin/ml serum | | | Culture positive but no sensitivity test | Total |
|---|--|---------|-------|---|-------|
| | < 0.1 | 0.1-1.0 | > 1.0 | | |
| Males | | | | | |
| Total | 389 | 53 | 3 | 11 | 456 |
| Primary cure with standard treatment | 286 | 32 | 1 | 5 | 324 |
| Females | | | | | |
| Total | 243 | 33 | 0 | 24 | 300 |
| Primary cure with standard treatment | 178 | 18 | 0 | 15 | 211 |
| Probable true recurrence | | | | | |
| Males | 4 | 4 | 1 | 0 | 9 |
| Females | 1 | 3 | 0 | 0 | 4 |
| Total | 5 | 7 | 1 | 0 | 13 |

This is not significantly lower than that obtained in 1966, i.e. 99.1%.

All cases considered as being probable true recurrences had positive cultures on control examination one to two weeks after the initial treatment. All denied repeated coitus. In another nine

cases (eight males and one female) direct smear microscopy was found to be positive but the culture did not confirm the diagnosis. In twenty-two repeated cases, coitus had occurred and reinfection rather than recurrence was regarded as probable.

A rise in frequency of gonorrhoea in the region of Stockholm has taken place during the recent years. The number of patients treated for gonor-

Table VII. Initial treatment of gonorrhoea and failure to respond

| | ♂ | ♀ | Total |
|---|-----|-----|-------|
| 1. Standard treatment | 411 | 259 | 670 |
| Primary cure | 324 | 211 | 535 |
| Reinfection during follow up | 11 | 11 | 22 |
| Probable true recurrence | 9 | 4 | 13 |
| Defaulter from follow up | 59 | 32 | 91 |
| 2. Other treatment | 45 | 41 | 86 |
| Other doses or variety of penicillin | 24 | 32 | |
| Tetracycline | 21 | 8 | |
| Sulphonamide | 0 | 1 | |

Table VIII. Complications of gonorrhoea

| | ♂ | ♀ |
|---------------------------------------|----|----|
| Arthritis | 4 | 2 |
| Bartholinitis | — | 1 |
| Epididymitis | 8 | — |
| Proctitis (with clinical symptoms) | 1 | 1 |
| Prostatitis | 3 | — |
| Salpingitis | — | 17 |
| Urethral abscessus | 1 | — |
| Total | 17 | 21 |

rhoea at the Karolinska Sjukhuset during 1968 is greater than in earlier studies. However, the twofold increase in patients from 1966 to 1968 is probably also a result of improved facilities for taking care of the venereal patients at the clinic.

As in earlier materials a number of patients were foreigners with language difficulties. This may to some degree explain the several "unknowns" in Tables II and III and IV.

The group of defaulters in the follow-up is large, namely 14% in males and 12% in the females. This high rate is probably due to the complex circumstances in large cities, but makes appraisal of therapy results more difficult.

A high frequency of positive cultures in female specimens taken from rectum, 50% is notable. The findings agree with other studies, i.e. by Scott & Stone (6) who found 42%. At the Karolinska Sjukhuset the 1966 figure was 29%. This increase is, at least in part, explained by improved facilities for culturing of gonococci at the bacteriological laboratory. All males with positive rectal cultures were homosexual.

The number of gonococcal strains with decreased penicillin sensitivity has increased in the reports from the clinic, i.e. 1962 (4), 1964 (5) and 1966 (3). In the present material (1968) there is no significant change in sensitivity as compared with 1966.

The penicillin dosage schedule recommended as "standard" treatment for acute gonorrhoea in Sweden has apparently given slightly less favourable results compared with those reported from 1966. Nor further increase of the dosage has been regarded as necessary. Nor does this study support the necessity for higher doses of penicillin given to females. However, it is of great importance to follow carefully the changes of penicillin sensitivity of gonococci and the efficacy of the treatment recommended.

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Lars Molin, M.D.
Department of Dermatology
Karolinska sjukhuset
S-104 01 Stockholm 60
Sweden