

## EPIDEMIOLOGICAL, DIAGNOSTIC AND THERAPEUTIC PROBLEMS OF GONORRHOE

Z. Penev, Sh. Tomov, G. Karayashev, M. Slavova

Key-words: gonorrhoe — epidemiology — therapy — Varna district

During the last decade there is a tendency towards continuous increase of the number of gonorrhoe (G) patients (e. g. in England in 1978 — 124/100 000; in the USA in 1979 — 460/100 000 inhabitants). G comes first among infectious diseases liable to binding registration in the USA. A total of 1.6—3.0 millions patients are yearly registered in this country (3, 10, 16). According to WHO data G morbidity is five times higher than that of syphilis (13).

Being familiar with the dynamics of gonococcal sensitivity to contemporary antibiotics is an important point when G control is concerned. The minimal inhibitory penicillin concentration towards gonococci was 0.001 IU/ml in 1945. However, in the last three decades this sensitivity reduced by 18 000 times. The isolation of  $\beta$ -lactamase-producing gonococcal strains resistant to penicillin was first reported in 1976. Currently, G therapy included a broad range of antibacterial drugs alone or in combinations: new penicillins, cephalosporins, tetracyclins, aminoglycosides, Cotrimazol, etc. (1, 2, 7, 8, 14, 15).

The aim of the present work was to clarify some epidemiological, diagnostic and therapeutic problems of G.

### Material and methods

The recently registered G morbidity in the city and district of Varna showed a relative stability (1978 — 65.74/100 000; 1979 — 54.26/100 000; 1980 — 82.77/100 000; 1981 — 60.21/100 000; 1982 — 47.23/100 000 inhabitants).

We examined a total of 103 G patients which were registered in 1981—1982. All of them were diagnosed by using of light microscopic study of urethral (or cervical, respectively) exudate smears stained with methylene-blue and after Gram. The epidemiological inquiry included as followed: an incubation period, source (known, found, unknown), contact persons (known, found, unknown), illness for the first time or for which one in a row, at which day physician's aid was sought for. The following aspects were of interest from the sociological point of view: family status, education, social commitment, alcohol consumption. Special attention was paid to self-treatment.

The therapy of these patients consisted of Kanamycin, Tetracyclin, Trobicin, Penicillin, and Ampicillin. Control microscopic investigations were performed on the 7<sup>th</sup> and 14<sup>th</sup> day in female patients and only once in male ones.

### Results and discussion

The number of male patients — 71 (68.93 per cent) was two times greater than that of female (32—31.06 per cent). The age between 21 and 30 years could be considered a risk one for males — there were 61.97 per cent of the patients

while in the age group after 30 years there were 22.13 per cent of the male patients only. There were 40.62 per cent of the female patients in the semi-decennium age group (15—20 years) but 56.25 per cent of them — in the decennium

Table 1

## Incubation period of gonorrhoea

Incubation period	males (%)	females (%)
up to 3 days	81.69	43.75
up to 5 days	16.91	53.12
up to 7 days	1.40	3.13

Table 2

## Epidemiological investigations of gonorrhoea patients

Sex	Sources		Contact persons	
	known (%)	diagno- sed (%)	known %	diagno- sed (%)
Males	60.56	53.52	58.78	57.74
Females	56.25	50.00	78.12	75.00

one (21—30 years). The disease was casual in females older than 30 years (only 3.12 per cent). Unmarried male patients were 71.83 per cent but female ones — 62.5 per cent of the cases. The proportion between married males' and females' morbidity was in females' favour: 23.94 per cent towards 34.37 per cent. Divorced patients were less frequently affected, namely 4.22 per cent of male and 3.12 per cent of female patients. 91.54 per cent of males and 65.62 per cent of females were socially engaged, i. e. one third of the females had no occupation or were disengaged at the moment of inquiry. The number of patients with elementary and secondary educations was almost equal in both sexes. 5.63 per cent of males and 9.37 per cent of females had higher education. All patients reported a moderate alcohol consumption. Incubation period lasted up to 3 days in most males (81.69 per cent) but up to 5 days in most females (53.12 per cent) (see table 1). The illness was for the first time in 71.83 per cent of males and 84.37 per cent of females. There rates were 18.34 per cent and 15.62 per cent, respectively, when the illness for the second time was concerned. Only 8.95 per cent of males were ill three times and more. Half of the male patients sought for physician's aid at the first day while 71.87 per cent of females did after the second day. This fact could be explained from the physiological and anatomical point of view. Self-treatment occurred more often in male patients (22.53 per cent) than in female ones (9.37 per cent). Half of the sources remained unknown or unfound. The known and found contact persons were 75 per cent concerning female and 57.74 per cent concerning male patients (table 2).

Successful G control was impossible without an exact diagnostics. The classic method of detecting of diplococci in smears was proved to be unefficiently sure although according to certain authors (9) it could be trustworthily used in an acute G in males. However, the frequency of errors by using of this method according to literature data varied between 4.5 per cent and 20 per cent, even up to 60 per cent (9). Pseudopositive smears for gonococci were 60 per cent in both sexes and pseudonegative ones were up to 40—50 per cent in females (9). Notwithstanding, according to A. Luger (12) smear staining with methylene-blue and after Gram was a generally accepted and reliable method at presence when taking into consideration that four-cocci's groups were not-specific for gonococci (4, 12).

Contemporary G diagnostics presented a combination of bacteriological investigation and direct immunofluorescence. Selective media with added antibiotics were used for culture isolation of gonococci. A well-equipped labora-

Table 3

## Therapeutic schedules for acute gonorrhoea male patients

Preparation	Dosage		Males	
	daily	total	n	%
Penicillin	1000000 U	10 000000 U	1	1.41
Ampicillin	2.0 g	2.0 g	1	1.41
Kanamycin	2.0 g	6.0 g	45	63.38
	2.0 g	8.0 g	4	5.63
Tetraolean	2.0 g	10.0 g	13	18.31
Trobicin	2.0 g	2.0 g	7	9.86

Table 4

## Therapeutic schedules for acute gonorrhoe female patients

Preparation	Dosage		Females	
	daily	total	n	%
Penicillin	1000000 U	10 000000 U	1	3.13
	2000000 U	30 000000 U	1	3.13
Ampicillin	2.0 g	2.0 g	1	3.13
Kanamycin	2.0 g	8.0 g	28	87.48
Tetraolean	2.0 g	10.0 g	1	3.13

tory basis, providing for optimal humidity, temperature and rich in CO<sub>2</sub> microclimate was required to meet this purpose. Transport media for preserving gonococci's vitality up to 96 hours were used to deliver the pathological specimens at similar laboratories (3, 17).

Gonococci's objectifying in cultures was done by using of smears stained after Gram, the oxidase test (which was characteristic for other Neisseriae, too), the methods for sugar decomposition, and the agglutination test. The immunofluorescent test was the most valuable one. It was based on labelled specific antigonococcal sera and enabled the differentiation of the gonococci from the other kinds of oxidase — positive bacteria (3).

Kanamycin was mainly applied in the treatment of our G patients (in 69.01 per cent of males and in 87.48 per cent of females) (table 3 and table 4). It was administered at a dosis of 2 g daily and a total dosis of 6 g for males and 8 g for females. Next came Tetraolean (in 18.31 per cent of male patients). Penicillin was used in isolated cases of both sexes. All patients were serologically examined for syphilis. The necessity of gonococcal sensitivity estimation towards various antibiotics and antibacterial drugs ensued from the continually varying

resistance even in single regions of one country as well as from the appearance of  $\beta$ -lactamase-producing (penicillase-producing) gonococcal strains (5, 6).

Based on our study the following conclusions could be made:

1. The epidemiological problems of G consisted in the following aspects: incomplete registration of newly-detected cases; half of the sources remained unknown or unfound; one fourth of the patients were self-treated; female patients sought lately for physician's aid.

2. The diagnosis of G in these patients was difficult — one needed to establish gonococci but not diplococci as a stage of G control.

3. The therapeutic problem consisted in the lack of information (namely resistogram) about the dynamics of the sensitivity of the gonococcal strains isolated.

## REFERENCES

1. Пенев, З., А. Бонев. *Дерматол. и венерол.*, 1978, № 4, 238—245. — 2. Пенев, З., Г. Караяшев, М. Славов, С. Станков. В: Конгр. бълг. дерматол. с междунар. участие, III. Пловдив, 9—10. V. 1980. г. Резюмега от докладите. Пловдив, 1980, 43. — 3. Пенев, З., Д. Томов. Проблеми на венеризма. Научен обзор. Под ред. З. Пенев. София, ЦНИМЗ, 1981, 80. — 4. Виск, А., Н. J. Heite, W. Thomanн. *Z. Hautkr.*, 52, 1977, No 1, 4—6. — 5. Dickgieber, N. *Aktuelle Dermatol.*, 9, 1983, No 5, 179—183. — 6. Eichmann, A. *Hautarzt*, 34, 1983, No 11, 537—538. — 7. Farago, F. A. *Börgyogy vener. Szle*, 53, 1977, No 3, 128—132. — 8. Gilliet, F. *Z. Hautkr.*, 52, 1977, No 1, 26—29. — 9. Hensel, O. *Z. Allgemeinmed.*, 53, 1977, No 6, 321—323. — 10. Jick, H., M. Hanan, A. Stergachis, et al. *JAMA*, 248, 1982, No 13, 1619—1621. — 11. Lehmann-Franken, E., G. Elste. *Dermatol. Monatsschr.*, 166, 1980, No 5, 317—324. — 12. Luger, A. *Z. Hautkr.*, 54, 1979, No 8, 338—350. — 13. Oriol, J. S. *As. Med. J.*, 61, 1982, No 26, 993—998. — 14. Rendtorff, R. C., H. Packer. *Brit. J. Vener. Dis.*, 55, 1979, No 2, 142—143. — 15. Rohde, B. T. *Z. Hautkr.*, 52, 1977, No 1, 50. — 16. Wiessner, R., J. Blount. *Hautarzt*, 31, 1980, 227—232. — 17. Young, H. *Brit. J. Vener. Dis.*, 54, 1978, No 1, 36—40.

## ЭПИДЕМИОЛОГИЧЕСКИЕ, ДИАГНОСТИЧЕСКИЕ И ТЕРАПЕВТИЧЕСКИЕ ПРОБЛЕМЫ ГОНОКОКЦИИ

З. Пенев, Ш. Томов, Г. Караяшев, М. Славова

## РЕЗЮМЕ

В последние годы зарегистрированная заболеваемость гонококкцией в Варне и Варненском округе показывает относительную стабильность — за 1978 г. — 65,47, за 1979 г. — 54,26, за 1980 г. — 82,77, за 1981 г. — 60,21, за 1982 г. — 47,23 на 100 000 жителей. На основе анализа состояния 103 больных обсуждаются эпидемиологические, диагностические и терапевтические проблемы гонококции. Рассматриваются вопросы неполного регистрирования больных, самолечения, позднего обращения к врачу. При лечении заболевания наиболее часто применялся антибиотик канамицин — при 69,01 % мужчин и 87,48 ж женщин. Терапевтическую проблему представляет собой отсутствие информации о динамике чувствительности изолированных гонококковых штаммов.