

## GONORRHOEA AND NON-GONOCOCCAL INFECTIONS\*

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### GONORRHOEA

#### EPIDEMIOLOGY

**Gonorrhoea Morbidity.**—The number of cases of gonorrhoea officially notified in France has been fairly steady for the past 11 years:

1946: 29,906	1953: 16,151	1957: 15,267
1950: 17,888	1954: 15,959	1958: 14,661
1951: 14,664	1955: 17,150	1959: 13,848
1952: 15,098	1956: 16,682	1960: 15,164

Although all physicians are obliged by law to notify new cases of gonorrhoea, it may be said that in practice the anti-venereal dispensaries alone abide by this rule. These figures, therefore, are not accurate but they remain valid for purposes of comparison.

The published documents do not enable us to establish the number of infections in persons under 20 years of age, but in France this problem seems at the present time to be of secondary importance. Nor has it been possible to establish the distribution by sex from year to year, but in the first quarter of 1959 the notified cases of gonorrhoea included 1,935 in men, 232 in women, and eight in children.

These notifications are made to the departmental Health Inspectorates and are combined by the National Institute of Hygiene in Paris.

#### Organisation†

(a) Venereal disease consultations and treatments are free; in areas where there is no dispensary, the medical officers attached to the rural antivenereal disease service can obtain the medicaments necessary for treatment.

\*This paper is the response to an inquiry made on the occasion of the European Symposium of the International Union against the Venereal Diseases and Treponematoses at Cracow, Poland, in September, 1960.

†We take this opportunity to thank the services of the Ministry of Public Health, and in particular Dr. Petitmaire, for the information provided by them.

At the present time there are about 600 anti-venereal disease dispensaries (on an average one per 70,000 inhabitants), to which should be added the services operating in the penitentiaries. These dispensaries may be classified into three categories:

- (i) Public dispensaries managed by the State, the departments, the communes, or the public establishments;
- (ii) Dispensaries managed by recognized "public utility" services, mutual aid societies, and social security organizations;
- (iii) Private dispensaries managed by private bodies other than those mentioned above, or by private persons.

(b) Case-finding is easy in men but difficult in women and for this reason the detection of contagious partners is important. Physicians are required by law to endeavour to obtain from their patients all information which may lead to detection of the source of infection.

If the physician has been able himself to examine the woman presumed to have caused the infection and if he has been able to persuade her to undergo treatment, he advises the health authorities that the contaminating agent has been detected and is under treatment *but he does not name her*.

If the physician has been unable himself to examine the contaminating agent or if, having examined her, he has been unable to persuade her to undergo treatment, he advises the health authorities within 24 hours so that they may find, examine, and treat the suspected person (Law of 31 December, 1942).

In the dispensaries the Social Welfare Service is responsible for these matters, under the authority of the medical officer. The Law of 8 July, 1948,

strengthens the powers of the health authorities which may require any person in respect of whom there is precise evidence of having communicated a venereal disease to provide a medical certificate stating whether he is suffering from infectious venereal disease or not.

(c) Persons refusing to comply with the regulations may be compulsorily hospitalized, but this is only applied in very rare cases in connexion with gonorrhoea, the provision having been mainly designed to deal with cases of syphilis. The health authorities invite persons refusing to comply with the regulations to undergo treatment and to present medical certificates proving that such treatment has been given within certain time limits. Compulsory hospitalization is only effected if the patient persists in refusing treatment (Laws of 31 December, 1942 and 8 July, 1948), and may be interrupted at any time if the patient agrees to undergo treatment by his own physician.

Compulsory hospitalization is applied not only to persons refusing to comply with the regulations but also to prostitutes and persons who have not, in spite of the admonishments of the health authorities, ceased to exercise the profession or to live the kind of life which led to the initial notification. Any compulsory hospitalization ordered by the Prefect of Police on the proposal of the health authorities is effected free of charge, the expenses being paid and distributed according to the tariffs and conditions laid down by the legislation on free medical care (Law of 8 July, 1948).\*

The search for gonorrhoea in women is made much easier by systematic case-finding in maternal and child health work, in Social Security examinations, health examinations for foreign workers, etc. The application of health supervision measures also plays an important role in the anti-prostitution campaign. Details of the organization and of the results obtained among prostitutes were submitted to the I.U.V.D.T. at Brussels (Laporte, Bidegaray, and Durel, 1958).

## DIAGNOSIS

There is nothing of particular clinical interest; those who wish to know our opinion may refer to our recent work (Durel and Siboulet, 1959). We

\* Since the meeting at Cracow, the Law of 25 November, 1960, has abolished all discriminatory measures against prostitutes; this has made it possible for France to ratify the Geneva Convention of December, 1949.

consider that chronic gonorrhoea is exceptional in men and that the disorders formerly considered to be due to gonorrhoea were in fact non-gonococcal infections persisting sometimes after gonorrhoea. Practically speaking, complications may be said to have disappeared: a few cases of epididymitis are still observed and, less frequently, of prostatic-vesiculitis; it is now some years since we detected any gonococcal arthritis and one hears no more of ophthalmological gonorrhoea.

In women, on the contrary, the tendency to chronic gonorrhoea and the possibility of latent infection are well known, and may be considered as the explanation of the persistence of morbidity. In the work mentioned above we have described a special technique for the detection of only slightly purulent urethritis and skenitis. Cases of gonococcal vulvovaginitis are very rare but they have not completely disappeared.

In women, culture is the only reliable method for bacteriological diagnosis. We do not use chocolate agar (which is too dark) but a medium (evolved by Roiron, 1954) which is easy to prepare and cheap to use:

(A) Add to 100 g. lean, chopped beef, 500 ml. tap water. Alkalinize with 15 ml. NaOH N and heat for 5 minutes at 75°-80° C. After cooling to 40° C., add 0.2 g. trypsin powder and place in the oven for 6 hours at 37° C. At the end of this time, stop the trypsin digestion with 0.7 ml. acetic acid and 10 minutes boiling. Keep cool overnight and filter the next day through gauze and paper.

(B) Dissolve 12.5 g. agar in 500 ml. 1 per cent. salt water.

(C) Mix the above products (A and B) in equal parts and add 1 g. agar and 5 g. crystallized Na<sub>2</sub>HPO<sub>4</sub>. Adjust the pH to 7.4 with NaOH N. Distribute in flasks and autoclave at 110° C. for 30 minutes.

At the moment of using, liquefy the medium by placing the flask in a water bath, leave to cool to 50°-60° C. and add 20 per cent. horse plasma, citrated and sterilized by Seitz filter.

For the study of sweet fermentations use ascitic fluid instead of horse plasma, which is in itself too rich in glucose.

The medium without plasma can be preserved for 6 months at laboratory temperature.

We carry out the seeding operations once only, at the end of the consultations. The specimens are taken with wads of cotton wool which are plunged immediately into the following transport medium

(Roiron) which restricts the growth of other germs while favouring the development of gonococcus:

Agar	...	...	...	...	3 g.
Bacteriological peptone	...	...	...	...	20 g.
Para aminobenzoic acid	...	...	...	...	0.1 g.
1 per cent. crystal violet solution	...	...	...	...	0.5 ml.
Distilled water	...	...	...	...	1,000 ml.

Distribute in 10 × 120-mm. tubes, 2 ml. per tube, and sterilize in autoclave at 120° C. for 30 min.

The problem of *non-gonococcal Neisseria* does not seem to be very well understood in some dispensaries where it is thought that any "oxydase-positive" culture of Gram-negative diplococci means that the gonococcus is present.

This question has been studied by Roiron (1957), who found that some of our technicians with good bacteriological training had wrongly deduced the presence of gonococcus in women in 8.15 per cent. of the cases examined. (These technicians have since been given further training!)

The present decrease in the susceptibility of gonococcus to penicillin and its increasing resistance to streptomycin is causing anxiety. Our results with 399 strains isolated in the period October, 1958, to February, 1960 (Roiron, Rasetti-Nicod, and Durel, 1961) were as follows (units or µg./ml.):

*Penicillin G* (Sodium Salts).—327 strains.

Strains		No.	Percentage
Susceptible to	0.025 OU (0.015 µg.)	165	50.4
	0.05 OU (0.030 µg.)	72	22.0
	0.10 OU (0.060 µg.)	53	16.2
	0.25 OU (0.150 µg.)	18	5.5
	0.50 OU (0.300 µg.)	15	4.6
	1.00 OU (0.600 µg.)	1	0.3
Resistant to	1.00 OU (0.600 µg.)	3	1/0

In general it is agreed that strains which are inhibited by 0.050 OU and less may be considered as susceptible. In our studies, we found 72.4 per cent. of the strains to be susceptible and 27.6 per cent. to be resistant—or more accurately—less susceptible. In fact, with respect to gonococcus and penicillin, the term "resistant" does not really apply, since as a rule an increase in the dose will overcome the infection. We would even be inclined to consider as susceptible those strains which are inhibited by more than 0.10 OU penicillin/ml., since such strains react very well in the disk test.

*Streptomycin* (Sulphate).—341 strains.

Strains		No.	Percentage
Susceptible to	2.5 µg.	33	9.7
	5 µg.	69	20.2
	10 µg.	133	39.0
	50 µg.	26	7.6
	500 µg.	1	0.3
	1,000 µg.	1	0.3
Resistant to	1,000 µg.	78	22.9

It has been demonstrated (see below) that strains inhibited by 50 µg. and less are susceptible to streptomycin. In our series, these amounted to 76.5 per cent. On the other hand, strains which are resistant to 1,000 µg. are totally resistant, whatever the therapeutic dose employed.

*Results grouped according to the time at which the strains were collected.*—Before July, 1959, 20 per cent. of the strains were resistant to > 1,000 µg./ml.; for the period October, 1959, to February, 1960, the proportion was 28 per cent.

*Crossed resistance.*—Fortunately, streptomycin-resistant gonococci are as a rule still susceptible to penicillin—provided that the dose is adequate. Of 76 streptomycin-resistant strains, 57.9 per cent. were inhibited by 0.05 units penicillin; 29 per cent. needed 0.100 units, and 13.1 per cent. needed concentrations of 0.250–1 units.

We must stress that, among unselected strains, 72.4 per cent. were inhibited by 0.05 units penicillin.

*Tetracycline* (Hydrochloride).—62 strains.

Strains		No.	Percentage
Susceptible to	0.12 µg.	39	63
	0.25 µg.	21	34
	0.50 µg.	2	3

*Spiramycin.*—61 strains.

Strains		No.	Percentage
Susceptible to	0.12 µg.	6	10
	0.25 µg.	38	62
	0.50 µg.	16	26
	1.00 µg.	1	2

Clinically speaking, we found that 1 µg./ml., when maintained for 5–6 hours, cured male urethritis. It may

therefore be assumed that all our strains were susceptible.

*Sulphathiazole*.—154 strains.

Strains		No.	Percentage
Susceptible to	2.5 µg.	45	29.2
	10 µg.	62	40.3
	50 µg.	37	24.0
	100 µg.	6	3.9
Resistant to	100 µg.	4	2.6

If, in agreement with other authors, it is admitted that strains which are inhibited *in vitro* by 50 µg./ml. and less are susceptible to the product, 93.5 per cent. of our 154 strains were susceptible.

It seems, therefore, that the sulphonamides may again—as a supporting element and probably for a certain time only—be considered as part of the anti-gonococcal arsenal.

It appeared useful to compare the previous results with those obtained by the disk method (Pasteur Institute). The results tallied very satisfactorily for penicillin (103 strains) and for streptomycin (109 strains), but for sulphathiazole (112 strains) the parallelism was less marked and less constant.

Venereologists in France must pay attention to the increasing resistance of gonococcus to streptomycin, and in this connexion, comparison of the laboratory and clinical results is instructive even though not unexpected: 242 patients provided strains of gonococcus and were given 2 g. dihydrostreptomycin. 177 strains (73.14 per cent.) were susceptible and there was no failure, but 65 strains were resistant and only three patients recovered (plus one who did not return). This means 93.9 per cent. failure with this group of strains which were resistant *in vitro*.

For the purpose of facilitating studies *in vitro* which can be made in the clinics, it was desirable to know how much value could be attached to a routine antibiogramme test carried out not with a previously isolated gonococcus but with the total urethral pus. Oxidation of the colonies of gonococci by dimethyl-phenylene-diamine makes it possible to recognize them clearly among other germs and to read the inhibition zones correctly (the material must of course be very rich in gonococci so that these latter may survive). This simple method can therefore be very useful.

The treatment of gonorrhoea reopens certain questions and it would obviously be desirable for these to be studied in competent and well-equipped institutions. In France there appear to be some services which could meet this requirement but they could, of course, be developed.

## TREATMENT

This report is intended to be restricted to generalities. In fact, it is difficult, at the end of 1960, to be definite and absolute. This is due not so much to the decrease in susceptibility of strains to penicillin as to the fear of the serious shock which may be caused by this antibiotic because, while it is always active if the dose is increased, there may be some hesitation in using it for a benign disease like gonorrhoea.

### The Case for Penicillin

*Efficacy*.—Epstein (1959) registered 28 failures out of 48 men who received in 5 days 3 million units of procaine penicillin in aqueous suspension. It would be interesting to know if other venereologists have had similar results. As far as we are concerned both in men and in women—and apart from certain cases of peri-urethral abscess—we have always found that the gonococcus disappeared after 1 million units of penicillin G in aqueous suspension. In our view, penicillin is still active provided that the doses which have hitherto been considered as classic are increased.

*Prevention of Early Re-infection*.—Hookings and Graves (1957) at Memphis treated their gonococcal cases with 600,000 units PAM + 1,200,000 units benzathine-penicillin G, and for the first time in years they noted that the gonorrhoea morbidity curve left the horizontal line and that incidence dropped by 21.58 per cent. in 3 years. In addition, the number of women notified as contaminating agents for the second time in 2 months fell from 15 per cent. to 6.7 per cent.

Takos, Elgin, and Cato (1957) at Miami treated women only with 2,400,000 units benzathine-penicillin G, and kept the dose for men at 600,000 units PAM so that re-infections in men might lead to the discovery of the contaminators. The monthly average of cases fell from 160 to 122, whereas morbidity remained unchanged in two neighbouring towns (Jacksonville and Tampa) where the repository "long-retard" penicillin was not prescribed.

It would seem therefore that the use of this repository penicillin is at the present time the only way of reducing the incidence of gonorrhoea.

*Is This Method Open to Criticism?*—Two criticisms may be made:

(1) Like all forms of penicillin, benzathine-penicillin G may provoke shock (we shall refer to this later);

(2) If new gonococci come into contact with the patient 2-4 weeks after treatment, the body is still slightly impregnated with the antibiotic—insufficient to kill microbes which are not very susceptible but sufficient to predispose them to resistance. This appears to condemn the method but should it be abandoned when, on the practical level, it has been found successful in the face of the present lessening of the susceptibility of gonococcus to penicillin, a phenomenon the cause, mechanism, and kinetics of which we have no exact knowledge? We regret that Dr. C. Hookings was not able to be present at this meeting to give us the benefit of his remarks on this subject.

Among prostitutes who are frequent transmitters of the gonococcus, we ourselves continue (exercising caution and surveillance) to employ benzathine-penicillin G (which we have had prepared in an ethyl oleate suspension which makes the injection practically painless) at the rate of 2,400,000 units plus 1,000,000 units aqueous penicillin G. At the St. Lazare Hospital we have seen the incidence of gonorrhoea drop from 1,132 cases in 1956 to 957 in 1957, 952 in 1958, and 851 in 1959. It is, of course, difficult to know how to interpret these figures.

*Penicillin Accidents.*—The number of serious accidents increases year after year and it is this in particular which is causing anxiety. We keep penicillin, in whatever form or dose, for cases without history of sensitization and we have everything to hand (including oxygen) to treat shock. If it were possible to detect susceptible persons this would be a great step forward, but we reject the skin and other tests, and a search for circulating antibodies according to various techniques gave no result in our hands.

*Other Antibiotics.*—Most orally administered antibiotics cure gonorrhoea with a few grams, but if patients know this they will treat themselves—more or less satisfactorily. The worst result is that the physician will see them no more and it will no longer be possible to find the *partners*, the reservoirs of infection. The injection method seems therefore to us to be a necessity, not so much from the individual as from the social point of view.

Unfortunately, at the present time, apart from penicillin, there only remains streptomycin—which has no effect on one strain out of four. The injection must therefore be strengthened by an oral antibiotic. For this reason, and on the assumption that other antibiotics may also lose their power in the future, we believe that—apart from the use of penicillin,

which is open to discussion—*gonorrhoea must be given strong and mixed treatment.*

For oral administration we seldom use the tetracyclines because they are sometimes not well tolerated; for the opposite reason we prefer spiramycin (Rovamycine). When the price of this drug is an obstacle, and since the sulphonamides are beginning to act again, we sometimes substitute sulphathiazole.

The treatment is summarized in Table I:

TABLE I  
ANTIBIOTICS OTHER THAN PENICILLIN

On Diagnosis	4 to 5 Hours Later	Four Following Days
1 g. dihydrostreptomycin + 1.5 g. spiramycin in <i>one</i> dose	1 g. dihydrostreptomycin + 1 g. spiramycin in <i>one</i> dose	
OR, for Economy		
2 g. dihydrostreptomycin + 3 g. sulphathiazole in the presence of the physician	2 g. sulphathiazole	5 g. sulphathiazole during the day

#### PROPHYLAXIS

The purpose of the Hookings method is to prevent post-therapy re-infections. It is therefore a prophylactic method and what we have said above could be repeated here. While little was heard of penicillin accidents, we endeavoured to determine what protection could be provided against syphilis and gonorrhoea by the monthly injection of 2,400,000 units benzathine-penicillin G in prostitutes. About fifty women commenced this prophylactic treatment voluntarily, 4 years ago, and about twenty of them continued the treatment more or less regularly for a little over 2 years. We made a study (Durel and Hardy, 1957) of the treponemidal power of the serum on *T. pallidum* surviving in the Mayer and Nelson medium, and also of the penicillin blood level. Both are somewhat inconstant and there are "gaps". However, no case of either syphilis or gonorrhoea was observed, though there was one case of gonorrhoea 42 days after the last injection. In the present state of our knowledge, this prophylactic method could not be adopted as general practice.

We have not employed any other prophylactic methods.

Health education is given to venereal disease patients on all possible occasions. There does not appear to have been any need in France to insist upon this in regard to persons under 20 years of

age, as the "teenager" problem seems to be a minor one in this country. The educational work has been entrusted to the National Centre for Health, Demographic, and Social Education attached to the Ministry of Public Health and Population, and to its inter-departmental Centres. The work has been proceeding for a number of years in close liaison with the National League against Venereal Disease. The activities include the distribution of literature and the organization of lectures, talks and films. In teaching establishments, talks and educational films are given to *lycée* and college students at least once a year and leaflets providing practical advice on prevention are distributed. A similar effort is made in all young people's circles (technical schools, apprenticeship centres, sports associations, etc.). In the factories, the work has been done on a less systematic but fairly regular basis thanks to collaboration between the Health Education Centres and the industrial medical officers. In the Army, the same steps have been taken in regard to young recruits. Finally, the general public is kept informed (through articles in widely-circulating magazines and reviews, radio talks, and television) of the danger of venereal disease and of ways of avoiding it.

These educational activities were particularly intensive in the inter-war period (1920-1940) when venereal disease was more widespread than at present. At that time, antivenereal disease and anti-tuberculosis activities took first place in the programmes of the Health Education Centres.

For some years now, the decrease in the incidence of venereal disease has made it possible to give first place to other more pressing problems, such as alcoholism, nutrition, prevention of cardiovascular diseases, etc. However, the National Education Centre maintains close contact with the venereal disease specialists and adapts its antivenereal disease propaganda to the problems to which its attention is drawn.

#### NON-GONOCOCCAL GENITO-URINARY INFECTIONS

There has been little development since the round-table discussions of the I.U.V.D.T. in September, 1954, in Monaco, the text of which was published in 1957. We would refer to our work mentioned above (Durel and Siboulet, 1959) and to the report presented at Montreal in September, 1959 (Durel, 1960). The following is a brief resumé of our findings:

In 3 to 4 per cent. of male cases of urethritis there appears to be a viral aetiology. The work of Jones, Collier, and Smith (1959) has been carefully studied by

us; we have commenced research with chick embryo inoculations but it is too early to talk of results.

*Haemophilus vaginalis* seems to be a non-significant saprophytic phenomenon.

We have too often obtained cultures of P.P.L.O. in apparently healthy individuals to attach any real importance to it, and we no longer make this test as routine practice. We hope that the work in progress and, in particular, that of the Lister Institute in London, will provide us with useful additional information.

The treatment of *Candida albicans*, both in men and women, is still a difficult problem in spite of the frequently effective action of Nystatine.

It is now well known that the problem of *trichomoniasis* has been completely transformed by the discovery of Metronidazole (Flagyl; 8823 R.P.); the application of this new drug has been fully discussed in this Journal and elsewhere (Durel, Roiron, Siboulet, and Borel, 1959, 1960; Durel, Couture, Collart, and Girot, 1960). Our first claims have been confirmed and developed and our findings are summarized in Table II (opposite).

#### Research

**Gonorrhoea**—The causes and conditions of the reduced susceptibility of the gonococcus to penicillin and streptomycin; this phenomenon must be followed up by 6-monthly estimates; Determination of persons susceptible to penicillin—research on possible circulating antibodies, blocking of certain molecular elements, discovery of "non-shock" penicillins.

**Candidiasis**—The conditions governing the passage from the saprophytic to the pathological state; The discovery of new antifungal agents.

**Trichomoniasis**—Perfection of treatment by imidazole derivatives (choice of the best method of application, application to pregnant women, incidence and extent of candidiasis surviving trichomoniasis, new derivatives).

**Non-gonococcal Urethritis in General.**—Aetiology; Careful classification of clinical suspects; Realistic estimate of the possibilities of spontaneous cure and the time-limit for this; Causes and conditions of relapses.

There is obviously room for many more meetings of specialists to discuss these subjects.

#### Summary

In France, as in most countries, the incidence of gonorrhoea remains widespread in spite of the many

TABLE II

RESULTS OF TREATMENT OF TRICHOMONIASIS WITH METRONIDAZOLE

Sex	No. of Cases	Treatment		<i>T. vaginalis</i> at End of Treatment		Evolution	
		Route	Dosage	Negative	Positive	Negative Cases	Positive Cases
Male	21	Oral	500 mg./day 10 days	18	3	2 relapses cured by second treatment	2 cured by second treatment 1 case lost sight of
Female	38	Oral	500 mg./day 10 days	31	7	5 relapses cured by mixed treatment	5 <i>T. vaginalis</i> disappeared under mixed treatment 2 cases lost sight of
	40	Vaginal only	500 mg./day 10 days	32	8	10 relapses <i>T. vaginalis</i> disappeared: 8 vaginal treatment 1 mixed treatment 1 lost sight of	3 <i>T. vaginalis</i> disappeared under vaginal treatment 3 mixed treatment 2 cases lost sight of
	48	Mixed	Oral: 500 mg./day 10 days Local: 500 mg./day 10-20 days	46	2	6 relapses* <i>T. vaginalis</i> disappeared: 2 after new series 4 lost sight of	1 <i>T. vaginalis</i> disappeared during new series 1 case lost sight of

\* Including five prostitutes.

antibiotics which are effective against it. Six hundred antivenereal clinics give free consultations and treatment throughout the country, and the Law of November 25, 1960, has abolished all discriminatory measures against prostitutes.

Many erroneous laboratory diagnoses are due to the growth of non-gonococcal *Neisseria*; 8.15 per cent. were found in an investigation carried out in 1957. The gonococcal strains are less sensitive at the present time to certain antibiotics:

27.6 per cent. of 327 strains tested with penicillin required  $\geq 0.05$  units/ml. for inhibition.

23.5 per cent. of 341 strains tested with streptomycin resisted a dose of  $\leq 50$   $\mu\text{g.}/\text{ml.}$ ; 22.9 per cent. resisted an enormous concentration of 1,000  $\mu\text{g.}/\text{ml.}$

93.5 per cent. of strains were sensitive to 50  $\mu\text{g.}/\text{ml.}$  sulphathiazole.

No resistance was observed *in vitro* with tetracycline or spiramycin.

To avoid failures due to this diminution or loss of sensitivity the treatment of gonorrhoea requires large doses of combined antibiotics; for example 2 g. streptomycin in two injections with 2.5 g. spiramycin in two doses.

Non-gonococcal urethritis still presents a problem; excellent results have been obtained, however, with Metronidazole in cases of urethritis due to *Trichomonas vaginalis*.

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## Gonococcie et infections non-gonococciques

## Résumé

En France—comme dans la plupart des pays—la morbidité gonococcique reste étale, malgré le nombre des antibiotiques actifs contre cette affection. Six cents dispensaires antivénéériens à consultations et soins gratuits fonctionnent sur le territoire. Une récente ordonnance (Novembre 1960) a supprimé toute mesure discriminatoire vis-à-vis les prostituées.

La fréquence des erreurs de laboratoire dues à la pousse de *Neisseria* non gonococcique est soulignée: 8,15% dans une enquête de 1957.

Les souches de gonocoques sont moins sensibles, actuellement, à quelques antibiotiques:

27,6% des 327 souches examinées vis-à-vis de la pénicilline ont exigé  $\geq 0,05$  U./ml. pour être inhibées.

23,5% des 341 souches examinées vis-à-vis de la streptomycine ont résisté à  $\leq 50$   $\mu\text{g./ml.}$  et 22,9% ont résisté au taux énorme de 1000  $\mu\text{g./ml.}$

93,5% des souches furent sensibles à 50  $\mu\text{g./ml.}$  de sulfathiazol.

Il ne fut pas observé de résistance, *in vitro*, vis-à-vis de la tétracycline ou de la spiramycine.

Pour éviter les échecs dus à cette diminution ou à cette perte de sensibilité, le traitement de la gonococcie doit être *fort et mixte*; par exemple: 2 g. streptomycine en deux injections et 2,50 g. spiramycine, en deux prises.

Les urétrites non gonococciques constituent toujours un problème; on enregistre cependant avec satisfaction les excellents résultats apportés par le métronidazole dans les urétrites à *Trichomonas vaginalis*.