

CEPHALORIDINE IN GONORRHOEA IN FEMALES*

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Cephaloridine has been evaluated in the treatment of gonorrhoea in males by Oller (1967a, b) and by Marshall and Curtis (1967). Oller (1967a, b) has also shown that this antibiotic might provide effective treatment for gonorrhoea in females, and his first paper (Oller 1967a) stimulated this clinical trial.

Material and Management

Cephaloridine ("Ceporin") was used to treat 255 attacks of uncomplicated gonorrhoea (other than gonococcal proctitis) in 234 women.

Of these 234 patients, 182 were born in the United Kingdom, 26 were from Southern Ireland, 26 from the West Indies, and the remaining three from India.

34 per cent. of the patients were aged between 13 and 19 years, 31 per cent. between 20 and 24 years, and 34 per cent. over 24 years.

The diagnosis of gonorrhoea was based on the recognition of diplococci morphologically identical to gonococci in films stained by Gram's or Sandiford's methods, or on the presence of gonococci in chocolate agar cultures. Specimens for films and cultures were taken from the urethra, the vagina, and the cervix, and at times from the rectum.

Treatment consisted of either 2 g. cephaloridine given as a single injection or of one injection of 1 g. repeated the following day. These treatments were given alternately except on Saturdays when all patients were given 2g. cephaloridine. Table I shows the number of patients receiving each treatment and their age distribution.

For tests of cure (urethral, vaginal, and cervical films, and chocolate agar culture) patients were asked to attend 3 days after treatment and then once a week during the next 3 weeks. It was hoped to keep them under observation for a further 2 months, although it was not intended to examine the lower genito-urinary tract during this time unless there was some indication that the disease might have recurred. Needless to say not all patients attended punctiliously and there was often a much longer interval between treatment and the follow-up examinations than had been planned.

Results

The results are outlined in Table II which shows the number of patients who defaulted immediately after treatment, those who had negative tests on the last occasion on which they were examined, treatment failures, and those who were cured and then re-infected.

TABLE II
RESULTS OF INITIAL TREATMENT

Follow-up (days)	No. of Cases	Failures	Re-infections
0	38	—	—
3-13	52	7	—
14-20	38	4	—
21-27	24	2	—
28+	52	—	17
Total	204	13	17

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TABLE I
INITIAL TREATMENT SCHEDULES

Dosage of Cephaloridine	Age Group (yrs)				Total
	13 and 14	15-19	20-24	24+	
2 g.	1	41	40	44	126
1 g. × 2*	1	38	34	35	108
No. of Cases	2	79	74	79	234

* Eight patients did not return for the second injection. Of these patients six were teenagers and two over 24 years of age. Three patients returned later for examination. All were free from infection.

Not unexpectedly, the women over 24 years of age attended better than the younger patients. Thus, of the 81 teenagers treated, 17 per cent. defaulted immediately and only 22 per cent. remained under observation for at least 4 weeks. The corresponding figures for the 74 patients in the 20 to 24-year age group were 18 and 20 per cent., and of the 79 patients over 24 years of age, 12 per cent. defaulted immediately and 34 per cent. remained under observation for at least 4 weeks.

Failures and Re-infections

As is well known, when gonococci are recovered

after treatment our ability to determine if treatment has failed or if re-infection has occurred is limited.

Of the thirteen patients shown as failures in Table II there was confidence that this assessment was correct in eight cases. Gonococci were isolated within 7 days of treatment in five of these patients, within 14 days in two (one of whom presented with acute salpingitis), and after 24 days in the last case.

It was much less certain that the other five cases were treatment failures, but there was insufficient evidence to indicate re-infection. One patient had negative test results after 5 days and positive results 3 days later. At this point the husband presented himself for treatment, but both husband and wife denied that there was any possibility that the wife had been re-infected. In the other four cases gonococci were found 12, 14, 17, and 21 days after treatment. All four were known to be very promiscuous and their claims that there had been no coitus since treatment were doubtful. These patients were re-treated with cephaloridine and it is probably significant that this treatment was successful in all four cases. In two cases, the dosage was similar to that given initially; in the other two cases the alternative treatment was given.

If there was lack of confidence regarding some of the cases classified as "failures", there was no such uncertainty regarding patients noted as re-infections, as in every case there was evidence to support this diagnosis. Of the seventeen patients re-infected, initial treatment had consisted of one injection of 2 g. cephaloridine in nine and two injections of 1 g. cephaloridine in the other eight. The intervals between the initial treatment and re-infection were as follows: 5 to 6 weeks—5; 7 to 9 weeks—3; 10 to 12 weeks—4; over 12 weeks—5.

These patients were re-treated with cephaloridine. Table III shows the number who had negative test results on the last occasion on which they attended the clinic. There was only one failure in this group—a patient who developed acute salpingitis after 2 g. cephaloridine in a single injection.

TABLE III
TREATMENT OF RE-INFECTIONS

Dosage of Cephaloridine	Follow-up Examinations				
	0	1	2	3	4
2 g.		(1)	3	1	4
1 g. × 2	1	1	2	2	2

(1) This was the patient who developed salpingitis.

Of these seventeen patients, four were re-infected a second time. It is interesting that they were all good attenders. In fact, three completed the surveillance period after treatment for the second infection, and the fourth had had three negative tests before contracting the disease for the third time. Re-treatment consisted of a single injection of 2 g. cephaloridine in one case—the other patients were given the divided dose. Treatment was successful in all four cases.

Results of Treatment

The results of initial treatment have been given in Table II. Table IV shows the results of therapy in the 217 infections in the 196 patients followed.

TABLE IV
RESULTS OF TREATMENT

Dosage of Cephaloridine	No. of Cases	Failures	
		No.	Per cent.
2 g.	113	8	7.1
1 g. × 2	104	6	5.7
Total	217	14	6.4

There is no significant difference in the failure rate between the two dosage schedules ($\chi^2 = 0.24$; $P > 0.5$). These results are very similar to those obtained with 2 g. cephaloridine in males by Marshall and Curtis (1967), and show that this antibiotic provided effective treatment for gonorrhoea in females as well as in males. (The fact that the defaulters have been ignored should not affect this conclusion, as there is no reason to suppose that these patients responded less favourably to treatment than those who remained under observation.)

Adverse Reactions

There were no adverse reactions in this series. Two patients have a history of penicillin sensitivity. Neither developed any reaction after cephaloridine therapy. However, Grieco (1967) has shown that there is cross-sensitivity between penicillin and cephaloridine, and acute allergic reactions have been observed in three Birmingham patients given cephaloridine for early syphilis because they were known to be allergic to penicillin.

Ten patients were pregnant when given cephaloridine. In one case there was a stillbirth at 26 weeks not connected with the antibiotic. Inquiries have not revealed that the other pregnancies were affected adversely in any way.

Summary and Conclusions

234 women who between them had 255 attacks of uncomplicated gonorrhoea were treated either with 2 g. cephaloridine in a single injection or with 1 g. repeated the following day. Ignoring patients who did not return after treatment for examination, the failure rate was 6.4 per cent. Neither treatment schedule had any advantage over the other. There were no adverse reactions to this antibiotic and it is concluded that cephaloridine provides effective treatment for gonorrhoea in females.

REFERENCES

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La céphaloridine dans la blennorragie chez la femme**RÉSUMÉ AND CONCLUSIONS**

234 femmes, qui entre elles, avaient eu 255 attaques de blennorragie sans complications avaient été traitées ou avec 2 g. de céphaloridine par une seule injection ou avec 1 g. répété le lendemain. Ignorant les femmes qui n'étaient pas retournées après le traitement aux fins d'examen, le taux de non-réussite avait été de 6,4 pour cent. Aucun des deux régimes de traitement n'avait un avantage sur l'autre. Il n'y avait pas eu de réactions fâcheuses à cet antibiotique et la conclusion est que la céphaloridine est un traitement efficace de la blennorragie chez la femme.