The agglutinin present in the plasma of group A recipients is not an absolute protection against anti-A agglutinins.

The iso-agglutinin content of serum and plasma pools prepared by the techniques used at the London Blood Supply Depots can safely be ignored.

[The authors are indebted to Medical Superintendents and staffs of hospitals in Sectors 8 and 9 for access to cases.]

REFERENCES

- Aubert, E. F., Boorman, K. E., and Dodd, B. E. (1942). *J. Path. Bact.*, **54**, 89.
 Brewer, H. F. (1937). *St. Bart's Hosp. Rep.*, **70**, 247.
 Brines, O. A. (1930). *J. Amer. med. Ass.*, **94**, 1114.
 Coca, A. F. (1938). *Amer. J. med. Technol.*, **4**, 28.
 Davis, H. A. (1941). *Surgery*, **10**, 592.
 DeGowin, E. L. (1937). *J. Amer. med. Ass.*, **108**, 296.
 Della Vida, B. L., and Dyke, S. C. (1941). *Lancet*, **1**, 564.
 Fairley, N. H. (1940). *British Medical Journal*, **2**, 213.
 Gilligan, D. R., Altschule, M. D., and Katersky, E. M. (1941). *J. clin. Invest.*, **20**, 177.
 Greval, S. D. S., Chandra, J. N., and Woodhead, L. S. F. (1941). *Indian J. med. Res.*, **29**, 231.
 Hesse, E. (1935). *Dtsch. Z. Chir.*, **245**, 371.
 Jakobowicz, R., and Bryce, L. M. (1941). *Med. J. Austral.*, **1**, 290, 318.
 Kettel, K. (1930). *Undersøgelser over Kuldehæmagglutiner i Menneskeserum*, Levin and Munksgaard, Copenhagen.
 Levine, P., and Mabee, J. (1923). *J. Immunol.*, **8**, 425.
 Levinson, S. O., and Cronheim, A. (1940). *J. Amer. med. Ass.*, **114**, 2097.
 Matta, D. (1937). *Publication No. 11, Faculty of Medicine of the Egyptian Univ.*, Cairo.
 O'Shaughnessy, L., Mansell, H. E., and Slome, D. (1939). *Lancet*, **2**, 1068.
 Ottenberg, R. (1911). *J. exp. Med.*, **13**, 425.
 Peters, J. P., and van Slyke, D. D. (1932). *Quantitative Clinical Chemistry*, **2**, 917, Baltimore.
 Riddell, V. H. (1939). *Blood Transfusion*, p. 49, Oxf. Univ. Press, London.
 Schiff, F. (1924). *Klin. Wschr.*, **3**, 679.
 Taylor, G. L., and Ikin, E. W. (1939). *British Medical Journal*, **1**, 1027.
 Thomsen, O., and Kettel, K. (1929). *Z. Immunforsch.*, **63**, 67.
 Townsend, I. M., and Coca, A. F. (1935). *J. Lab. clin. Med.*, **21**, 729.
 Wiener, A. S. (1939). *Blood Groups and Blood Transfusion*, 2nd ed., Baltimore.
 Witebsky, E., Klendshoj, N., and Swanson, P. (1940). *J. infect. Dis.*, **67**, 188.

TREATMENT OF GONORRHOEA, BALANITIS, AND ACQUIRED PHIMOSIS

BY

T. R. LLOYD JONES, Surgeon Commander R.N.

Naval Medical Registrar for Venereal Diseases, Royal Navy

1. GONORRHOEA

For the purposes of this part of the article are here described a total of 500 cases which were treated by us as out-patients from the onset of the disease. In view of the varied scales of dosage of sulphapyridine used throughout the Navy, our object was to find out what daily amount would lead to cure in a reasonable period and at the same time would not render a patient unfit to carry out his routine work. This point was regarded as most important, because it is usual in the Navy for uncomplicated cases of gonorrhoea to be kept on full duty.

All these patients have carried out their daily routine work, and, so far as our statistics show, their employment during treatment has not been to the detriment of their probable cure. As regards diet, all have been on ordinary Service food, with

TABLE I

Group	Dosage	Total Cases treated	Straight-forward Cases	Cases requiring Adjuvant Treatment	Average No. of Days under Treatment		
			No.	No.	Straight-forward Cases	Adjuvant	Total Cases
1	27 g. (54 tablets: 10, 8, 8, 8, 6, 6)	141	111 (78.7%)	30 (21.3%)	8.6	22.4	11.5
2	29 g. (58 tablets: 12, 10, 10, 10, 8, 8)	50	41 (82.0%)	9 (18.0%)	6.8	24.8	10.0
3	27.5 g. (55 tablets: 10, 9, 9, 9, 9, 9)	154	125 (81.2%)	29 (18.8%)	7.1	13.9	8.4
4	27 g. (54 tablets: 9, 9, 9, 9, 9, 9)	155	139 (89.7%)	16 (10.3%)	6.6	16.5	7.6
Totals	—	500	416 (83.2%)	84 (16.8%)	7.3	18.6	9.2

no restrictions whatsoever: the taboo of specified articles of diet in a community in which set meals are prepared and are eaten by all is an impossibility in practice, so our patients have not had to worry as to what they should or should not eat. This, psychologically, is probably of benefit; at all events, it has not retarded the progress of cure and has caused no abnormal gastric upsets.

No drugs other than sulphapyridine were given. Alcohol was prohibited. Shore leave automatically stopped, thereby largely preventing civilian contagion. No irrigations were given in the so-called straightforward cases set out in Table I. Cure was hoped for when discharge had ceased and the morning urine was clear. A provocative irrigation of silver nitrate 1 in 15,000 was then given, and the following morning a urethral and prostatic smear was taken; a few epithelial cells or pus cells were not considered a bar to discharge to duty from the "attending list."

Treatment

Group 1.—In this group (Table I) 141 cases were treated with 27 g. (54 tablets) of sulphapyridine over a period of 7 days, taken as follows: 10 tablets the first day, 8 tablets on the second, third, fourth, and fifth days, and 6 tablets on the sixth and seventh days. Of these 141 cases 30 required adjuvant treatment (Table II), 27 being mild anterior or anterior and posterior

TABLE II

Group	Anterior and Posterior Infections	Arthritis	Epididymitis	Peri-urethral Abscess	Tyson's Gland Infection	Relapses
1	27	1	1	—	1	4
2	8	—	1	—	—	—
3	26	—	2	1	—	3
4	13	—	1	2	—	5
Totals	74	1	5	3	1	12

infections, responding to irrigations and massage, etc. The case of arthritis was of doubtful gonococcal origin and lasted only 3 days, while both the epididymitis and the Tyson's gland infection were established before treatment by us. These 3 cases were placed on the light-duty list for a short time only. Whilst under treatment no cases of epididymitis occurred in any of the groups. Ten toxic reactions were recorded (Table III), a rate of 7.1%.

TABLE III

Group	Mild Gastric Upsets	Headaches	Cyanosis	Rashes
1	2	—	1	7
2	6	—	—	3
3	13	2	—	1
4	1	—	—	—
Totals	22	2	1	11

Group 2.—It was thought that if the daily dosage could be slightly increased and the total days reduced one could perhaps succeed in getting cases off the attending list more quickly. Therefore a dosage of 29 g. (58 tablets) given over a period of 6 days was tried—12 tablets on the first day, 10 on each of the second, third, and fourth days, and 8 on the fifth and sixth days. But it was found that, although the average number of days under treatment was slightly reduced, there was a definite increase in gastric upsets and rashes, a total of 9 cases occurring out of 50 in this group, averaging 18%, as compared with 10 cases out of 141, averaging 7.1%, in Group 1.

Group 3.—Because of this increase in toxic symptoms in Group 2 it was decided to reduce the dosage but to adhere to the same number of days' treatment; consequently a total dosage of 27.5 g. (55 tablets), 1.5 g. less than Group 2, was tried. On the first day 10 tablets were given, and 9 on each of the remaining days. The result of this survey gave 13 gastric upsets, 2 mild headaches, and 1 rash, a total of 16 cases in 154, averaging 10.4%—slightly higher than Group 1, but much less than Group 2. It was noticed in this group that, although the total dosage was slightly decreased, the average number of days' treatment before presumed cure had also definitely decreased.

Group 4.—As the results in Group 3 had been exceedingly good it was thought that it might be of benefit to reduce the first day's dosage slightly to see if gastric upsets were lessened, as it

had been observed that these upsets generally occurred in the first 24 to 48 hours. Another modification was to give the tablets immediately after meals; previously they had been given irrespective of meals. Accordingly 27 g. was given in Group 4, a reduction of 0.5 g., taken from the first day's dosage, as compared with Group 3, so that 9 tablets were given daily for 6 days, as follows: 2 after breakfast, 2 after dinner, 2 after tea, and 3 after the evening meal, crushed with the teeth and followed by a drink of tea or water. In this series of cases only 1 gastric upset occurred, equivalent to 0.65%. This was an incredible decrease of gastric symptoms, but one must remember that the knowledge has gone round that sulphapyridine can cure in a very short time compared with the older days of continuous irrigations, lasting often for months. With this knowledge in mind, complaints such as mild gastric upsets are often withheld under the fear that curtailment of sulphapyridine treatment may result. This seems the most likely explanation of the decrease of gastric troubles in this group. Although the decrease in the total dosage in Group 4 as compared with Group 3 was extremely slight, the average number of days under treatment was even better—7.59 days compared with 8.37.

Though many of our cases showed no discharge and had clear urines before the completion of their scheduled treatment, it was considered necessary to keep them on their predetermined dosage in order to standardize results. Our gastric disturbances were mainly malaise; few actual cases of vomiting were reported, and the cutting down of dosage was the usual treatment for this, or light duty for 24 hours. The rashes of varying types occurred around the eighth day, lasting a day or two and disappearing without any special treatment. No complications arose while any of our cases were under treatment, except for the doubtful case of arthritis already mentioned. The three peri-urethral abscesses were already present when first seen.

For test of cure, patients were told to come back in 7 days' time, when a further provocative irrigation of silver nitrate 1 in 15,000 was given, and a urethral and prostatic smear was taken the following morning; then again in one month's time, and two months later for similar control. It is admitted that this presents a difficult problem in the Navy, as our patients may get drafted suddenly to any part of the world, or to small ships not carrying a medical officer. Our known relapses up to date number 12, but, owing to drafting, there may have been others not known to us. All married men are advised, for the protection of their wives, to use a condom for three months after discharge to duty.

The length of time previously taken by irrigation methods to effect a clinical cure contrasts markedly with the present-day results with sulphapyridine. Often in 24 hours urethral discharge has to all intents disappeared, and gonococci are negative in any smears obtained. This has given rise to a feeling that every case should respond in a like manner and that cure should be expected in a definite number of days. We had our failures and relapses previously after months of irrigation, and we may expect some even after use of sulphapyridine. It is not yet known what dosage gives the maximum number of cures; there is probably a personal factor, as all cases do not consistently respond to the same dosage.

Conclusions

The following points have been brought out in our investigation: (1) Ambulatory treatment is not contraindicated and work has been no deterrent to cure. (2) The gastric tolerance of sulphapyridine of patients at work is remarkably good. (3) Dietary restrictions are unwanted. (4) There is no need for local treatment in the average uncomplicated case. (5) A short course of treatment (six days) and a moderately heavy dosage (4.5 g. daily) of sulphapyridine give a high rate of clinical cure. (6) In this series of cases no complications arose either during or after treatment. (7) For uncomplicated gonorrhoea stay in hospital is unnecessary; the resulting saving of loss of manpower in days' sickness at any time is of the utmost importance, and especially so in this hour of national emergency.

2. BALANITIS AND ACQUIRED PHIMOSIS

A total of 127 cases of the above have been seen during the past two years, including simple balanitis, with or without other infections, and those cases of far more importance associated

with a syphilitic or non-syphilitic (chancroidal) infection of the hidden area. The main difficulty in these cases is the elucidation of the underlying cause; and this condition of phimosis, associated with varying degrees of inflammatory oedema of the foreskin, often forms a definite bar to its retraction and inspection. Any attempt to retract the foreskin is extremely painful and often absolutely impossible. Textbook treatment of this condition, by dorsal slitting, circumcision, or similar methods, has been generally advocated and carried out. One knows the length of time that often accompanies these surgical measures and in many cases the unsightly condition that frequently results.

We have tried out the following method of treatment with most satisfactory results. There has been no surgical interference whatsoever, and a minimum amount of loss of days' duty.

Treatment

Thorough irrigation of the subpreputial space with hot hypertonic saline is carried out by means of an irrigating apparatus (not by syringe) at a height of 3 feet for about 20 minutes, 3 times daily if possible, to ensure that the saline finally emerges as clear as it goes in. The foreskin should be retracted as far as possible with one hand to ensure firm control of the penis and efficient irrigation: these are not possible when a syringe is used. At the end of the irrigation, uncontaminated urethral discharge can often be obtained by gentle pressure along the urethra and smears taken from the meatus or preputial orifice. If no discharge is present a urine without subpreputial contamination can usually be secured for further examination. The possibility of syphilitic infection can often be confirmed by retracting the foreskin as far as possible, and by applying gentle massage over the oedematous area, and especially over any palpable induration. The resulting expressed serum, often blood-stained, is examined for the *Spirochaeta pallida*. The above procedures may be repeated, if necessary, after each hypertonic irrigation.

The removal of the oedema is a most important factor in cure, and in every case the penis is kept elevated on the abdominal wall by means of wool and bandage or jock-strap to promote drainage of the oedematous area by gravity. When the oedema has mainly gone the instillation of a little liquid paraffin into the subpreputial space is of great help before attempting to retract the foreskin. After completing the examination the foreskin in every case should be brought forward again immediately; otherwise so long as oedema persists a paraphimosis will almost certainly supervene with its possible complications.

Sulphanilamide is given to every case by mouth (6 tablets daily in 3 doses of 2 crushed tablets) and is continued up to 5 days if necessary.

Conclusions

Our investigation tends to show that: (1) Dorsal slitting, or other surgical measures, often taking weeks to heal, are in the main neither necessary nor justifiable. (2) The only local treatment required is hypertonic saline irrigation and elevation of the penis. (3) The oral administration of sulphanilamide deals most satisfactorily, in the course of a few days, with subpreputial inflammation and has considerably simplified and shortened treatment.

I wish to thank Surg. Lieut. F. G. Maitland, R.N.V.R., for his kind collaboration, and Sick Berth Petty Officer J. T. Nuttall, R.N., for his most valuable and unflinching help.

The Pharmaceutical Society's second supplement to the *British Pharmaceutical Codex, 1934*, which has now been published, makes such amendments in the formulae for galenicals contained in Part 3 of the *Codex* as are necessitated by four Addenda to the *B.P.*, by wartime restrictions generally and certain Defence Regulations in particular, and by the publication of the *National War Formulary*. It also contains formulae for new preparations of increasing use at the present time, and in Appendix XII notes on methods of sterilization and directions for the preparation of sterile solutions for injection. The supplement may be obtained from the Pharmaceutical Press, 17, Bloomsbury Square, W.C.1, price 2s. 6d.