enable the relevance of spontaneous fibrinolysis to the problem of occlusive vascular disease to be tested by long-term therapeutic trial.

Summary

Blood fibrinolytic activity was compared by a single estimation in 50 male and 50 female diabetic out-patients, and in equal numbers of age-matched controls selected because of freedom from occlusive vascular disease. The diabetics as a group had lower fibrinolytic activity than the controls, and among the diabetics electrocardiographic evidence of myocardial ischaemia occurred twice as commonly in those whose fibrinolytic activity was low as in those whose fibrinolytic activity was high.

A significant inverse relationship between obesity and fibrinolytic activity was found in every group of patients except the female controls. There was no association between age and fibrinolytic activity, and among the diabetics no correlation between fibrinolytic activity and duration of diabetes, blood-sugar level, or cholesterol level.

These observations suggest that spontaneous fibrinolysis is of importance. If the function of fibrinolysis is to maintain vascular patency the possibility of enhancing its action pharmacologically may permit a fresh approach to the problem of occlusive vascular disease.

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Uganda has become a full member of the World Health Organization. This brings the total number of W.H.O. members up to 117, of which one, Rhodesia and Nyasaland, is an associate. Jamaica, formerly an associate member, is now eligible for full membership since it has attained its independence: and the United Kingdom has indicated its intention of seeking associate membership for Mauritius, for whose foreign relations it is responsible.

CATHETER-INDUCED URINARY INFECTION: FOLLOW-UP STUDY

BY

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The passage of a catheter has been shown to cause urinary infections in a proportion of female patients, and it has been held that such infections may initiate chronic and progressive renal damage. However, to our knowledge, no prospective study has so far been published which establishes the frequency with which this occurs. In an attempt to study this we have re-examined as many as possible of the 102 patients described by Durham *et al.* (1954). Of these patients, who had undergone operations for vaginal repair in 1953, 90 developed urinary infections which were ascribed to catheterization. Eighty-two of these infected patients received treatment and 73 had sterile urine at a single examination before discharge, in some cases while the drug was still being given or immediately after the end of a course. Thus in 17 patients infection was still present on discharge. It is possible that the 73 patients with sterile urine were, in fact, cured, but it is unlikely. Other work—for example, that of Garrod *et al.* (1954)—suggests that re-examination a month or so later would have shown some of these patients again to have urinary infections.

Materials and Methods

Letters were written in 1961 and 1962 to all patients believed to be alive and likely to be able to attend hospital; in the remaining cases the general practitioners were consulted. For those known to have died, reference was made to various sources, including the General Register Office. All patients who attended hospital were examined by a physician and a gynaecologist. Mid-stream specimens of urine were collected for bacteriological examination and were examined by a quantitative plate method (Cattell and Lefford, 1963). Blood urea and serum creatinine values were also determined.

Results

Seventy-one patients were seen, 17 were reported on by their own doctor, and 10 were known to be dead. The Table shows these patients, their age in 1953, and what little is known of the remaining four patients.

Age Distribution

1961-2	Age in 1953						
	Total	25-	35-	45-	55-	65-	75-
Patients seen	71	4	14	27	22	4	0
on by G.P.	17	0	2	3	6	6	0
Patients known to be dead	10	0	1	2	5	1	1
Miscellaneous*	4	0	1	1	1	1	0

* Two patients known to be alive (one in good health, one under care of a homoeopath) and two patients untraced (one thought to have emigrated, one thought to be dead).

Patients Seen.—Of the 71 patients seen, vaginal examination revealed some degree of prolapse in five. Two others had already undergone a second operation for recurrent prolapse. Five gave a history of urinary infection since their operation in 1953. On examination in 1961–2 the only one of these to have an infected urine was a patient known to have renal calculi which were present before her operation. The other four had no elevation of blood-pressure, blood urea, or serum creatinine. One further patient, who was one of the few in 1953 not to have a urinary infection, had had an attack of acute pyelonephritis. Three others were found to have infected urines in 1961–2, the criterion for infection being more than 100,000 organisms/ml. of urine. None of them gave a history of recurrent renal infection, and none had elevation of blood-pressure, blood urea, or serum creatinine. Of the remaining 62 patients, 14 had either a raised blood urea (over 45 mg./100 ml.) or serum creatinine (over 1.02 mg./100 ml.) or diastolic blood-pressure (a rise of over 15 mm. Hg above previous level), but in no case could the abnormal finding be correlated with a history of recurrent renal infection or evidence of urinary infection at the time of their attendance at hospital.

Patients Reported on by General Practitioner.—A questionnaire was returned by the doctors of 17 patients who were unable to attend. None of these patients were under treatment or had been treated by their doctor for urinary infection. Not all the patients were seen at the time the questionnaire was filled in, but blood-pressure was recorded for 13 patients and in one there was an unexplained rise since her operation. Her urine was, however, sterile.

Patients Known to Have Died.—Of the 10 patients known to be dead, six had died more than five years post-operatively. The causes of death were as follows: coronary disease (2), congestive heart failure (2), cerebrovascular accident (2), fractured skull (2), diabetes and nephrosclerosis (1), carcinoma of breast (1). The two patients who died from congestive heart failure had had no rise in blood-pressure since their operation and recent urine cultures had been sterile. For four other patients it was known that the urine had been sterile during the terminal illness.

Discussion

This survey has not shown any example of a patient suffering chronic or recurrent infection of the urinary tract with progressive renal damage as a result of catheter-induced urinary infection some nine years before. This satisfactory finding could be criticized, or explained, in a number of ways. The majority of the originally infected patients were treated before discharge, and therefore only the 17 patients still infected on discharge may have been at risk. As has already been suggested, if this was so, treatment must have been more than usually effective. As patients were seen on only one occasion, asymptomatic intermittent urinary infection may have been missed and renal damage may not yet have progressed to the extent of causing nitrogen retention or hypertension. The same argument would apply to the 17 patients seen by their own doctor and the 10 who had died.

In explanation, catheter-induced infections may involve the tissues of the urinary tract minimally, and usually patients are able to eliminate the organisms

responsible. Before the infection becomes established some other factor such as a local abnormality of the tract, or diabetes, may be needed. Or it may be simply that an infection persisting and spreading from the bladder to the kidney occurs in too few patients for us to have seen it in our series of 102.

It is now possible to reduce very considerably the number of women who develop urinary infection due to post-operative catheterization (Williams *et al.*, 1962; Gillespie, 1963). It appears from this study that if an infection occurs and it is treated, the majority of patients are unlikely to suffer permanent renal damage; but this finding should not, of course, be regarded as an invitation to indiscriminate catheterization.

Summary

In 1953 102 patients underwent operation for vaginal repair. Ninety developed urinary infections and at least 17 still had infected urine on discharge.

Seventy-one of these patients were examined in 1961–2, 17 were reported on by their own doctor, and 10 are known to have died.

No patient was found to be suffering from progressive renal damage which could be ascribed to catheter-induced urinary infection in 1953.

We would like to thank Mr. John Beattie, Mr. Donald Fraser, and Mr. J. Howkins for permission to examine their patients, and to acknowledge the great help given to us by general practitioners, hospitals, and executive councils in tracing patients who had moved and in reporting on patients who could not attend or who had died. We are greatly indebted to Miss E. J. Armour and Miss A. Taplin for their help in organizing the follow-up. Finally we must thank the patients themselves, many of whom came from considerable distances.

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When some five years ago the Nuffield Nursing Homes Trust was considering the planning of its first new nursing-home it found that there were few data about the ideal size and shape of a patient's bedroom. On the other hand, there was a wealth of information concerning hospital wards. Aided by this and observations which it made in its first aid, at that time, only nursing-home at Bournemouth, the Trust evolved a bedroom and had a full-scale model built at its London headquarters. This was duly studied in detail, and, with some modifications, the features were incorporated in the first new nursing-home at Woking, in a new extension to a home in Harrogate, and in a new home now nearing completion at Exeter. These features will also be incorporated in nursing-homes planned by the Trust in Birmingham, Shrewsbury, Hull, and London (Bryanston Square). Research showed that a space 4 feet wide on either side of the patient's bed was adequate for nursing and other functions, and that a bedroom 12 by 10 feet would be ideal. The prototype of this room designed for the Trust, with its many convenient features, can be seen by appointment at the Trust's offices at 10 Essex Street, London W.C.2. By this means it is hoped that the fruits of the Trust's researches can be shared by all who are interested in beds for the private treatment of sickness.