Contemporary Themes

Urology in a Modern Health Centre

R. SCOTT, J. SINCLAIR, S. D. CHOWDHURY, A. J. YATES, J. MILLIGAN

British Medical Journal, 1975, 2, 321-323

The present concept of general practice is that practitioners will wherever possible be concentrated in large group practices. Health centres facilitate such groupings, and specialized medical and nursing personnel can also operate within the complexes. Hospital consultants are increasingly participating in this system, and we report here on our two-year experience with a urological clinic in a modern health centre.

The Health Centre

Cumbernauld is a new town situated between Glasgow and Stirling with the use of hospital facilities in both cities and in Falkirk. The population is just under 40 000, and despite considerable public pressure the town is not likely to support a hospital in the near future. The townspeople come from the west of Scotland, especially Glasgow, and most are therefore used to full hospital facilities. The health centre (temporary) is situated in the main shopping precinct. Most general practitioners work within the main centre and there are a few practices in subsidiary medical centres.

Hospital consultants have over the past few years been holding clinics in general surgery, medicine, ear, nose, and throat, dermatology, paediatrics, and gynaecology and obstetrics in the centre. In 1971 a urologist (R.S.) was invited to start a clinic. He has full use of the available diagnostic facilities, including radiology.

UROLOGY CLINIC

The consultant urologist holds one half-day clinic each week and the senior registrar a half-day clinic each fortnight, essentially to accommodate return patients. Attendances at the clinic doubled from 248 in the first year to 549 in the second (table I). Case records and laboratory request forms are made out at the centre when the patient first attends. These records are then removed daily to the main hospital, where documentation and laboratory analyses are completed and returned to the health centre for the patient's follow-up visit. The referral rate to the urology clinic differs between general practitioners. There are several reasons for this—for example, the choice of consultant, the choice of hospital, the average age of patients within the practice. (A paediatric urological service is not a normal part of the parent unit's work.) The general practitioners were

numbered 1-13, with those in the periphery and surrounding villages classified as "others" (14), and the proportion of 107 new cases referred in one year by each general practitioner was calculated. (table II).

Analysis of Work Undertaken in First Year

There were 129 first-time attendances at the clinic in the first year, and 72 patients made at least one return visit to the clinic in the first year. Twenty-two of these patients were directed to the health centre from the hospital outpatient department.

SYMPTOMS

All information about patients, including the major presenting symptoms, was recorded on punch cards and analysed along with significant radiological, bacteriological, biochemical, and endoscopic findings. The commonest reasons for referral were nocturia (in 17 men and 24 women), frequency (in 14 men, 26 women), dysuria (15 men, 21 women), haematuria (13 men, 19 women), and renal colic or pain (table III). Symptoms related to the male external genitalia were the next most common reason for referral. In one patient who was referred because of enuresis intravenous pyelography and a micturating cystogram confirmed the presence of vesicoureteric reflux and the patient was referred to a paediatric urologist. Eight men were referred for consideration for male sterilization but in only one was it considered justifiable on medical grounds under the terms of the N.H.S.

RESULTS OF LABORATORY INVESTIGATIONS

Urinary Infections.—Many patients were referred with symptoms which might have been attributable to infection of the urinary tract. Mid-stream urine specimens were collected in the health centre and delivered to the hospital laboratory within two and a half hours of collection. Surprisingly, only two men and five women had significant bacterial counts (>100 000 organisms). In both men and two of the women *Escherichia coli* was found, and a proteus organism was found in two women and *Streptococcus faecalis* in one woman. No cases of tuberculosis were uncovered though 20 patients were screened by the checking of three early morning specimens of urine.

Biochemical Estimations.—Most patients had their serum urea, creatinine, and electrolytes measured, with calcium, inorganic phosphate, protein, alkaline phosphatase, and uric acid also measured in suspected stone cases. No one had a raised blood urea or creatinine. One patient had a moderate hyperchloraemic acidosis, one had hyperkalaemia, and one had a raised calcium with a lowered serum inorganic phosphate value which was not substantiated on full metabolic screening.

Haematological Investigations.—One man and three women were found to have an iron deficiency anaemia. Abnormalities in erythrocyte sedimentation rate were found in three men and two women. One of the men had a past history of tuberculosis, one had a renal stone, and in one the abnormality remained unexplained despite further investigation by a physician. One of the women had rheumatoid arthritis and the other had urinary tract infection.

Urological Department, Royal Infirmary, Glasgow G4 0SF

R. SCOTT, M.B., F.R.C.S., Consultant Urologist

J. SINCLAIR, M.B., F.R.C.S., Senior Registrar

S. D. CHOWDHURY, F.R.C.S., Senior Registrar

A. J. YATES, M.B., F.R.C.S., Senior Registrar

J. MILLIGAN, M.B., CH.B., General Practitioner

TABLE I—No. Of Attendances at Urology Clinic in its First Two Years

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Total
First year:													
Male	4	4	4	9	8	13	22	16	16	17	8	12	133
Female	1	4	4	9	3	4	21	92	14	13	16	4	115
Second year:													
Male	18	9	20	21	24	37	27	16	23	17	14	21	247
Female	13	15	25	37	31	33	32	17	18	22	24	35	302

TABLE II—Referral Rate of 107 New Patients seen in First Year by Individual General Practitioners

General practitioner no. No. (%) of cases	1 26(25.2)	2 13(12.2)	3 6(5.6)	4 1(0.9)	5 4(3.7)	6 10(9.4)	7 5(4.7)	8 8(7.5)	9 8(7.5)	10 11(10.3)	11 6(5.6)	12 4(3.6)	13 3(2.8)	14 1(0.9)
--	---------------	---------------	-------------	-------------	-------------	--------------	-------------	-------------	-------------	----------------	--------------	--------------	--------------	--------------

TABLE III—Patients Presenting with Ureteric Colic or Renal Pain and Outcome

	No. of Patients	Passed Stones	Stones Observed	Ureterolithotomy	Normal I.V.P
Ureteric colic:					
Men	7	4		1	2
Women	6	2			2
Renal pain:					
Men	14		2		11
Women	25		3		23

TABLE IV—Abnormal Findings on I.V.P.s of 19 Men and 20 Women

	No. of Men		No. of Women
Lower pole cyst	1	Calculi	7
Calices not seen	1	Dilated ureter	1
Residual urine*	3	Dilated calices	3
Dilated ureters	2	Scarring	3
Pool detail	3	Double ureters	3
Duplex kidney	1	Large residual urine	1
Scarring	1	Gall stone	1
Calculi	7	Caliceal cyst	1

One patient had a bladder tumour and one a possible urethral diverticulum.

TABLE V—Site of Stones on x-ray Films in Seven Men and Seven Women

	Calcification				Stone				Staghorn Calculus	
	Lower Pole Right	Lower Pole Left	Upper Pole Left	Mid Left	Lower Pole Left	Lower Pole Right	Mid Calices Left	Left Ureter	Right Kidney	Left Kidney
Men	1			1	1	1	1	2*		
Women		1	1		1			2†	1	1

* One in the mid-ureter, one in the lower ureter.

† Both in lower ureter.

RADIOLOGY

Apart from the eight vasectomy patients all those referred from general practice underwent intravenous pyelography (I.V.P.) in the health centre. Two patients had allergic reactions to the investigations, one of which was classified as "severe." Of the remaining 97 I.V.P.s abnormalities were observed on those of 19 men and 20 women (table IV).

Because of inadequate renal delineation it was considered necessary to undertake infusion pyelography in six men and five women. Further abnormalities were uncovered in six patients but two men failed to attend for further examination.

STONE DISEASE

Stone disease is a subject of particular interest in the parent department. Seven men and six women were referred because they had ureteric colic, and examination of I.V.P.s showed that 14 patients (seven men, seven women) had radiological evidence of stone disease (table V). Of those who had ureteric colic six passed stones before attending the clinic. Eight of the stone patients were still under observation at the time of writing after an initial full metabolic investigation of possible aetiological factors. Four patients had operations to remove calculi (ureterolithotomy, meatotomy of the ureteric orifice nephrectomy, and pyelolithotomy), one spontaneously

passed the stone, and we lost trace of one patient. One patient underwent cervical exploration for possible hyperparathyroidism, but no adenoma was found. Since then the patient has remained symptom-free and normocalcaemic.

ADMISSION TO HOSPITAL

Based on the findings at the clinic 27 men and 21 women were admitted to hospital for cystoscopic examination. Included in this group were two men and one woman who underwent retrograde catheterization of the ureter. Abnormal findings were reported in nine men and one woman. Two men, one of whom had never had haematuria, had bladder tumours, two had benign prostatic hypertrophy, two had cystitis, one had carcinoma of the prostate, one had a urethral stricture, and one had a urethral polyp. The woman had a large residual urine (800 ml) and she underwent a full neurological examination including myelography, but no cause could be found in the central nervous system to explain the retention of urine. The retention was relieved by a short course of oral carbachol. Of the three retrograde pyelograms one in a man confirmed the presence of a stone and the other two failed to show any abnormality.

Nine patients were admitted for surgery, including the man who underwent vasectomy. Operations performed on the other six men were transurethral resection, retropubic prostatectomy, ureterolitho-

TABLE VI—Percentage of Patients with Significant Abnormalities

Predominant Symptom	% Abnormal on I.V.P.		% Abnormal on Cystoscopy	
	Men	Women	Men	Women
Frequency	14	20	23	0
Haematuria	33	25	45	0
Nocturia	50	45	12	0
Dysuria	50	25	33	3

tomy, urethroplasty, meatomy, and an exploration of the testis, which showed nothing abnormal. One woman underwent nephrectomy and one pyelolithotomy. All patients underwent their operation within four months of the initial visit to the clinic, but since then there has been an increase in the waiting list time.

OVERALL FINDINGS

Out of 99 new patients seen at the clinic in the first year excluding those referred for vasectomy 54 (55%) (33 males, 21 females) had some abnormality. Thus 45 (45%) were completely normal on urinary tract investigations. Sixty-six patients had to be further investigated or treated in the main hospital. This means that just under 38% of all referrals for primary patient care were dealt with in their own surroundings without recourse to hospital consultation.

Discussion

There is debate about the role of the general practitioner in community hospitals within the integrated Health Service,¹ but there is no doubt that general practitioners will work in modern health centres with the use of ancillary services, and the Chief Medical Officer for Scotland has stated that most doctors appreciate such groupings.² To give adequate support to general practitioners hospital consultants must, and already have in some cases, become involved in health centre work,³ and it is clearly government policy to encourage this type of practice to remove the artificial barriers which exist in the Health Service.⁴ Certain consultants, however, consider that work undertaken in a health centre reduces the time spent in patient care in outpatient departments and in teaching junior medical staff.⁵ Nevertheless, the use of consultants in a health centre fosters closer co-operation between family doctor and specialist and prevents unnecessary hospital referral.⁶ Robertson⁶ sees advantages in resolving problems at the primary care level and in the addition of scientific methodology to the general practitioner service. It is also obviously better that a patient should be dealt with in a building which is less remote from his or her normal surroundings.⁵

Many facts have emerged about the number of patients who have been seen in health centres by specialists participating in such schemes. Increasingly, consultants in specialities other than general medicine and surgery⁷ are conducting clinics in health centres—for example, psychiatrists⁸ and gynaecologists⁹—but we are not aware of any reports of urology in a health centre.

When our clinic started we thought that the numbers of patients we would see would be small, but, surprisingly, numbers compare very favourably with other specialities including general surgery and medicine.⁷ It is a possible indicator to future developments that more than 50% of patients had significant abnormalities (table VI). The effort made by the hospital team in identifying these abnormalities is very

rewarding, but it is of equal value to eliminate the 40% with no disease in a predominantly young community. As we expected we found that cystoscopy in women was unlikely to show any significant disease. The low rate of abnormalities noted on cystoscopy in men who had nocturia was at first surprising if one thinks in terms of prostatic hypertrophy, but it must be remembered that the average age of the population in Cumberland is less than 40 years.

The importance of stone disease in a working population is very obvious, and our experience confirms observations already made.¹⁰ One surprising finding was the small number of cases where a significant bacterial growth was found in urine. The high standard of living in a new town may cause a reduction in urinary tract infection but it is more likely that the health centre facilities have resulted in better early treatment and follow-up in these patients.

The principal advantages are to the patient. Less time is spent in travelling on bad routes to the hospitals in Glasgow, which is important to highly skilled men and young mothers with families, especially since many women have regular part-time employment. This is one aspect of the service which is very much appreciated by the local population.

Doctors benefit too in that communication between hospital doctors and general practitioners is made easier. The problems of teaching have been overcome by taking each registrar in turn to the centre, where there is more time to discuss each individual patient and registrars are brought into direct contact with the general practitioners. Time spent away from the hospital is the most obvious disadvantage to the hospital staff. There are also difficulties in ensuring that hospital records are available where required, and efforts have been made to minimize duplication of any documents. Care has to be exercised in the transportation of specimens to central laboratories, and this could become a serious problem if the numbers seen at the clinic increase significantly.

It is obvious to those with first-hand experience that health centres if properly supported are ideally situated to give first-class patient care and are also excellently placed for clinical research.⁸

References

- Weston Smith, J., *et al.*, *British Medical Journal*, 1973, 2, 471.
- Brotherston, J., *Health Bulletin*, 1973, 31, 107.
- Scottish Home and Health Department, *General Practitioners in the Hospital Service*. London, H.M.S.O., 1973.
- British Medical Journal*, 1973, 2, 415.
- Thomson, W., *Health Bulletin*, 1969, 27, 18.
- Robertson, S. J. T., *Health Bulletin*, 1973, 31, 111.
- Miller, W. R., and McLean, I. G., *Health Bulletin*, 1968, 26, 15.
- Dean, R. M., *Health Bulletin*, 1972, 30, 190.
- Harper, W. F., Auld, A., and Murray, A., *Health Bulletin*, 1972, 31, 281.
- McKay, I., *et al.*, *Urology*, 1974, 4, 274.