Unsuspected urinary infection in general practice

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Summary

A SURVEY was undertaken to find the prevalence of asymptomatic bacteriuria in people in normal health who were patients of members of the North-west Faculty of the Royal College of General Practitioners. Midstream specimens were collected from 341 males and 456 females seen in visits to 19 practices in Lancashire and Cheshire. Three males and 45 females had $> 10^5$ bacteria/ml; three males and 26 females had > 50 pus cells/cu mm. Both significant bacteriuria and pyuria were found in three males and seven females. The percentage incidence varied in each practice from 0–24 per cent. About one third of the patients with significant bacteriuria or pyuria had urinary symptoms, but there were also 53 males and 104 females, who had urinary symptoms, whose urine was normal.

The highest attendances were in those practices where the family doctor made the initial approach to the subjects.

Introduction

Urinary tract infection is common in general practice. Loudon and Greenhalgh (1962) calculated an incidence of 30 cases/1000 patients/year and Eastwood, Bruce and Wren (1965) reported an even higher rate of 62 cases/1000 patients/year. Many family doctors diagnose urinary infection by the presence of symptoms and then prescribe treatment irrespective of the urinary findings. The recent emphasis on the importance of asymptomatic bacteriuria first described by Kass (1957) has produced many surveys designed to detect the prevalence of significant bacteriuria in selected populations. Kunin, Southall and Paquin (1960) found that one per cent of little girls had $> 10^5$ bacteria/ml. In pregnancy the reported prevalence is 5–7 per cent (Little 1966, Sleigh, Robertson and Isdale 1964, Turner 1961) while in diabetics the prevalence was 13 per cent compared to 12 per cent in patients attending casualty departments (O'Sullivan, Fitzgerald, Meynell and Malins 1961). The incidence of significant bacteriuria in general practice has not been studied although Kass, Miall and Stuart (1961) found one per cent of males and four per cent of females in the Rhondda valley had bacteriuria.

This survey was undertaken to try to establish the prevalence of significant bacteriuria in healthy people. The secondary purpose of this survey was to show that research projects involving the co-operation of family doctors with a university department were feasible even when a 'difficult' procedure such as the collection of fresh specimens of urine was entailed.

Methods

A circular was sent to members of the North-west Faculty of the Royal College of General Practitioners, informing them of the proposed survey and requesting their co-operation. It proved possible to survey patients from 19 practices in Lancashire and Cheshire, the farthest being 75 miles from Manchester. Patients were selected in different ways, according to the advice of the practitioners concerned, some were approached by letter and others were asked by their family doctor. About 20 patients

were seen by the author at each visit and at most four visits were made to each practice over a period of two years. The occurrence of urinary symptoms past and present, in each patient, and in women the obstetric history, was recorded. A history of catheterization or operation upon the genito-urinary tract was noted as was a family history of urological disease. Each subject without preparation or supervision passed a midstream specimen of urine directly into a wide-mouthed waxed carton. Laboratory examination included quantitative bacteriological culture, differential cell count, albustix and clinistix readings, measurement of the pH and specific gravity. Urines which contained > 10^5 bacteria/ml or > 50 pus cells/cu mm were considered abnormal. The data was coded and recorded on IBM punch cards for statistical analysis. The results of the urine examinations (including antibiotic sensitivities where appropriate) were sent to the doctors who then managed the patients as they wished.

Results

Seventeen surgeries and two factories were visited. All types of practice including urban, rural, single-handed, and group practices were included. Specimens of urine were collected from 341 males and 456 females (42 of whom were pregnant).

TABLE I
SIGNIFICANT BACTERIURIA AND PYURIA

Practice	*> 10^5/ml*				*> 10^5/ml > 50 p c/cu mm*				*> 50 p c/cu mm*			
	M	*%*	*F*	*%*	*M*	*%*	*F*	*%*	*M*	*%*	*F*	*%*
11			6	*11*							4	*7*
12			2	*15*								
13			5	*18*								
14			3	*19*								
15	1	*2*										
17			1	*3*							2	*6*
18			2	*9*			1	*5*			3	*16* (P)
19							1	*10*			1	*7* (P)
21			4	*20*			1	*5*			1	*20* (P)
22			2	*9*							1	*5*
23			2	*12*								
24												
25			1	*2*			1	*2*	1	*17*	3	*7*
26	1	*2*									3	*14*
27			3	*18*								
28	1	*3*	11	*24*	3	*10*	3	*7*	2	*6*	2	*4*
29			1	*9*								
30												
32			2	*8*								
TOTAL	3	*< 1*	45	*9*	3	*< 1*	7	*1*	3	*< 1*	20	*4*

(P represents 1 pregnant patient)

There were three males (<1%) and 45 females (9%) with > 10^5 bacteria/ml of urine, three males (<1%) and 20 females (4%) with > 50 pus cells/cu mm, a further three males (<1%) and seven females (<2%) had both significant bacteriuria and pyuria. Of the 42 pregnant women none had significant bacteriuria and six (14%) had > 50 pus cells/cu mm. As will be seen from table I the percentage incidence of bacteriuria and pyuria varied in each practice from 0–24 per cent.

Asymptomatic bacteriuria was found in two males (<1%) and 32 females (7%);

14 females (3%) had asymptomatic pyuria; two males (<1%) and four females (<1%) who were asymptomatic had both bacteria and pus cells present in significant numbers.

Symptoms included diurnal-nocturnal frequency, scalding or painful micturition, stress incontinence and pain in one or both loins. Approximately one third of patients who had significant bacteriuria or pyuria had symptoms referable to the urinary tract

TABLE II

SYMPTOMATIC BACTERIURIA AND PYURIA

Practice	*> 10^5/ml.*				*> 10^5/ml > 50 p c/cu mm*				*> 50 p c/cu mm*			
	M	*%*	*F*	*%*	*M*	*%*	*F*	*%*	*M*	*%*	*F*	*%*
11												
12			1	*8*								
13												
14			2	*12*								
15												
17												
18											1	*5* (P)
19											1	*7* (P)
21			2	*10*			1	*5*				
22			1	*5*							1	*5*
23			1	*6*								
24												
25									1	*17*	2	*5*
26												
27			1	*6*								
28	1	*3*	4	*9*	1	*3*	2	*4*	2	*6*	1	*2*
29												
30												
32												
TOTAL	1	*< 1*	12	*3*	1	*< 1*	3	*< 1*	3	*< 1*	6	*1*

(table II). In addition there were 53 males (13%), 101 females (25%) and four pregnant women (10%) who had one or more of the symptoms listed but whose urine contained no abnormal constituents (table III). The incidence of symptoms in each practice ranged from 9–43 per cent of males, 7–60 per cent of non-pregnant females and 5–50 per cent of pregnant women.

Discussion

The survey was undertaken not only to attempt to determine the prevalence of significant bacteriuria in patients not previously studied but also to show that co-operation between a para-clinical university department and family doctors was possible. All visits were arranged to suit the mutual convenience of the family doctor and the author. The response of the patients to the survey depended upon the manner in which they had been approached, the highest response was to a verbal request from their own doctor. This demonstrates the value of the family doctor to a survey team and his co-operation should be sought in any epidemiological project providing that he has the time available.

In this survey visits were made to surgeries where patients were seen and specimens of urine collected. In addition urine was collected (at the request of the family doctor) from a small group of symptomatic patients who were not included in the survey. To

reduce the length of the visit all urines were examined in a central laboratory although some premises had excellent facilities.

In healthy people the prevalence of significant bacteriuria has been reported as less than two per cent in childhood (El Garhy and Richardson 1964) one per cent in men

TABLE III
SYMPTOMATIC WITH NORMAL URINE

Practice	Males		Females			
			Non-pregnant		Pregnant	
	No.	%	No.	%	No.	%
11			4	7		
12			4	31		
13	10	23	9	31		
14			7	44		
15	7	13				
17	6	43	7	20	1	50
18			2	9	1	5
19			2	20	1	7
21			7	35	1	20
22	3	30	4	18		
23			3	18		
24	2	40	6	60		
25	1	17	15	35		
26	11	23	6	26		
27						
28	8	26	8	18		
29			6	54		
30	5	9				
32			11	46		
TOTAL	53	13	101	25	4	10

and six per cent in women (Kass, Miall and Stuart 1961), rising to seven per cent of elderly men and 30 per cent of elderly women (Sourander 1966). The prevalence of bacteriuria and pyuria in this survey is similar to other surveys although there is a higher incidence of bacteriuria in females. This may be due to the composition of the survey since there was considerable variation between the different practices, for example practice 28 contained large numbers of elderly patients.

The poor correlation between symptoms and urinary abnormalities is shown clearly. In some cases symptoms may be due to disease of the genital tract. It is desirable that facilities for examination of the urine should be more readily available than they appear to be at present. Although many practitioners have access either to hospital or public health laboratories the problem appears to be the collection and transport of the specimen from the patient to the laboratory.

The significance of asymptomatic bacteriuria and pyuria is not yet established and family doctors are in a position to study the natural history of the condition providing that they have access to laboratory services. This survey has shown that such co-operation is possible and has drawn attention to the size of the problem.

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