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Causes of Microhaematuria in an Austrian General Practice

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In order to determine whether patients with microhaematuria seen in general practice should be followed up in order to establish an aetiological diagnosis, a study was performed in a general practice in Vienna. Over a period of 2½ years 87 patients with haematuria were found by a systematic procedure among a clientele of 2500 persons. This gives a one-year incidence rate of about seven per 1000. By systematic investigation, three main groups of patients could be found: 1) patients with microhaematuria and additional leukocyturia and bacteriuria (40 %), most of them needing no further investigation after treatment of their urine infection; 2) patients with microhaematuria showing different degrees of pathological changes after a complete urological check-up (43 %); 3) patients where the complete checkup did not reveal any aetiological diagnosis (13 %).

Key words: microhaematuria, diagnostic procedures, general practice.

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In daily routine work a general practitioner is constantly confronted with one important question: whether to follow-up a certain symptom discovered in a patient or consider it insignificant and therefore neglect it. Some symptoms make us, by all known odds, expect calamitous progress, and in such cases our decisions are clear. But there are other symptoms whose harmless progress in the majority of cases makes us forget that every now and then they may result in highly dangerous situations. One of these symptoms is microhaematuria.

Definition of microhaematuria. In this study, microhaematuria was defined either as a positive stix-test based on the identification of pseudoperoxidase activity or as more than two red blood cells per microscopic field in a fresh urine sample, which had been centrifuged for at least three min.

Aims. This study tried to answer the following questions: 1. What is the incidence rate of microhaematuria detected as part of daily non-screening work in a general practice? 2. Which aetiological diagnoses were obtained by thorough investigation of these patients? 3. Do these results justify a thorough investigation of all patients with this symptom?

MATERIAL AND METHODS

The study was based on patients from one single-handed general practice located on the outskirts of

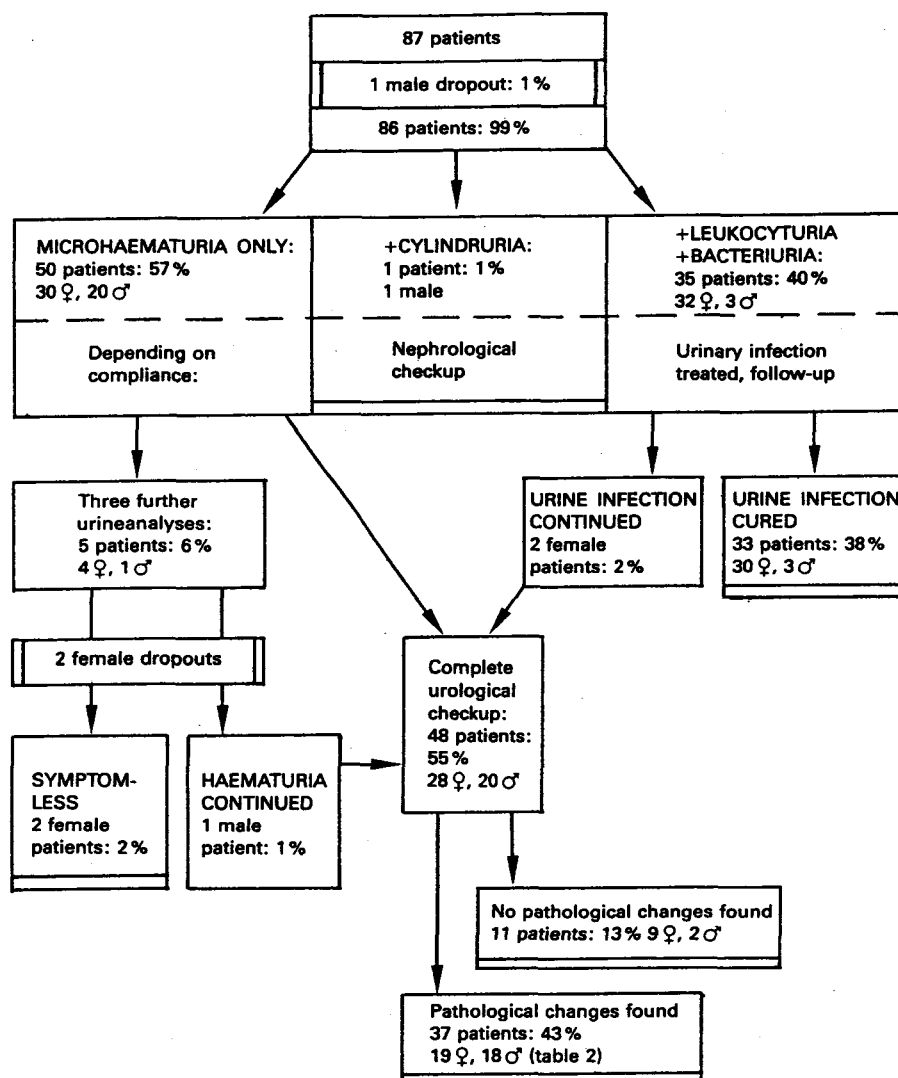
Vienna. The practice serves a rather large population of about 2500 patients. There are about 25 to 40 encounters per day, and a similar number have contact to the receptionist for administrative purposes.

The study lasted for 2½ years, starting in January 1982. All patients in whom urinary examination showed microhaematuria were included in the study. Urinary examination was performed because of symptoms from the genito-urinary tract, pain in the loins or as part of routine checks for systemic diseases like diabetes, hyperuricaemia and hypertension. Cases found at health checks among asymptomatic persons were not included.

Three different procedures of investigation were used depending on the initial findings (Table I):

1. In cases of microhaematuria minus leukocyturia and bacteriuria a *minimum programme*, suggested by Frick, Kunit & Schmoller (1) was applied. It consisted of a thorough anamnesis, clinical examination and an intravenous urography plus urethrocytostomy. Patients in whom personal or medical contra-indications prohibited this procedure were followed up with at least three further urinalyses and clinical investigations. If harmlessness of the symptom could not be proven by this procedure the patient was referred to a urologist. Gynaecological investigation had either been done routinely during the preceding half-year or it was

Table I. Diagnostic procedure during the study



performed after microhaematuria had been discovered.

2. If there was additional leukocyturia and bacteriuria, the procedure was different. Urinary infection was treated for at least five days and followed up with further urine examinations during the subsequent months. If infection did not respond to the second course of an antibiotic treatment the patient was referred to the urologist, and so was persistent microhaematuria after treatment of infection.

3. Patients with urine infection, microhaematuria and cylindruria were immediately referred to a urologist.

RESULTS

Eighty-seven patients, 25 men, average age: 39 years (range: 9–85), and 62 women, average age: 50 years (22–81) entered the study. This means an incidence rate of about seven per 1 000 persons per year in this practice (95% confidence limits: 3–14). Three patients (3%) could not be followed up. One patient (1%) had additional cylindruria and was sent for nephrological examination. Thirty-five patients (40%) were treated for urine infection and 33 of these were cured. Fifty patients had microhaematuria minus infection or cylindruria. A total of 48 patients underwent a complete urological examina-

Table II. *Diagnostic results*

Diagnosis	No.
Hyperplasia of prostate	6
Nephrolithiasis	5
Hyperuricaemia	5
Varices in bladder	3
Irritable bladder	3
Inflammation of bladder	3
Urethritis	2
Pyelonephritis	2
Descensus vaginae	2
Renal cyst (benign)	2
Renal cyst (malign)	1
Carcinoma vesicae	1
Focal nephritis	1
Bleeding haemorrhoids	1
Renal insufficiency from gout	1
Total	38

For one patient, two diagnoses were listed.

tion, with diagnostic results of quite different significance. Two cases of malignant change needed urgent further intervention. In 11 patients no pathological changes were found. These and all further diagnostic results are listed in Table II. Patients found asymptomatic after clinical examination and specialised urological examination are still followed-up in this practice, but since the end of the study in June 1984 until February 1985 it has not showed any further findings.

DISCUSSION

In 2½ years, 87 patients were found to have microhaematuria. This means an incidence rate of about seven per 1000 persons per year in this practice (95% confidence limits: 3–14). Based on 200 working days per year this means, that in a practice of comparable size one will meet such a patient every fifth to sixth working day.

Clarification of such a symptom can for practical reasons be based entirely on a maximum program of investigation. Further, in cases of treatable urinary tract infection it is not necessary. Microhaematuria will most often only be a transient symptom without further importance (1).

As Tables I and II show, a considerable number of patients with microhaematuria had leukocyturia

and bacteriuria caused by urinary infection. The majority were women. Two of these patients had to be referred to the urologist. In all cases of treated urinary infection with additional microhaematuria, some doubt can remain as to the origin of the blood. Therefore it was decided to do a follow-up during the next few months, which after urinary infection is indicated anyway.

From this study it can be concluded, that 17% of the patients had significant pathological changes including two urgent lesions, one of which definitely was a carcinoma of the bladder. The other was a bleeding cyst of the kidney, which had to be operated upon. Furthermore, two cases of pyelonephritis and five cases of kidney stones, which at least had to be observed to anticipate further damage. It therefore seems reasonable to follow up persistent microhaematuria in general practice. Carcinoma and nephritis, in spite of their low frequency, must always be suspected, and their inherent danger must override considerations of frequency and expenses of specialised examinations (1, 2, 3). However, there will be a high percentage (in our study 13%, in Carson's 19%) (3) of patients in whom no reason for microhaematuria can be found. A diagnosis of "benign primary haematuria" can be the explanation. This term designates "persistent or recurrent haematuria presumably due to glomerular capillary haemorrhage in the absence of real glomerular or systemic disease" (4). As this diagnosis has no further consequence and as it only can be reached by renal biopsy we did not proceed any further.

Hyperuricaemia was found in five cases. The reason for their microhaematuria might be a hidden descent of small renal calculi. Damage to their kidneys could be excluded and some of the patients reported kidney stones in the past.

This study selected only patients with a certain range of symptoms chosen against the background of clinical experience. It might be a weakness. On the other hand publications dealing with screening for microhaematuria deny its value (5, 6) and conditions of social insurance practice in Austria allow no payment for screening procedures.

A study like this, from a single-handed general practice, shows an important morbidity hidden behind a seemingly spurious and easily neglected symptom. It also shows that even small-scale epidemiology can give results relevant for daily work in general practice.

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