
SHORT COMMUNICATION**Asymptomatic Proteinuria and Hematuria in School Going Children**

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Abstract:

Background: This study was undertaken because many cases of asymptomatic proteinuria and hematuria are present in school children.

Aims and Objectives: The study was undertaken to evaluate asymptomatic proteinuria and hematuria in 100 school children of both sexes from 6 to 15 years of age.

Material and Methods: Samples were collected randomly from students of different classes at the Government Kannada Primary School, K H B Colony, Bijapur, Karnataka (India). The midstream urine sample was collected in a clean wide mouth jar, examined by dipsticks for proteinuria and hematuria by microscopy. *Results:* We found that asymptomatic proteinuria and hematuria was more prevalent amongst the children between 10 to 13 years of age group with female predominance i.e. 16% proteinuria and 5% of microscopic hematuria respectively. *Conclusion:* By this study we conclude that it would be possible to screen a large population of children for asymptomatic proteinuria and hematuria at a relatively low cost.

Key words: Hematuria, Proteinuria, Microscopy, School aged children, renal disease

Introduction:

This study was undertaken in children aged 6-15 years i.e. school going population to assess them for asymptomatic proteinuria and hematuria. The purpose of this article is to review

the differential diagnoses of hematuria and proteinuria, and to describe a plan for evaluation and possible referral. Obtaining a positive dipstick test for protein is not an uncommon finding in adolescents; it is transient and induced by factors such as fever, exercise or exposure to cold. These disorders account for the majority of cases of proteinuria present in childhood or adolescence in about 60 to 70% cases respectively [1, 2]. Microscopic hematuria is also a common finding in unselected school age children between 6 to 15 years as indicated by a positive dipstick for blood in a single urine sample [1, 3].

There is a long list of causes of microscopic hematuria, most of which are benign especially in children presenting with isolated asymptomatic microscopic hematuria. Studies to support current recommendations regarding the evaluation and management of isolated asymptomatic hematuria are long overdue even though this condition is frequently encountered in clinical practice [4, 5]. With this background the present study was undertaken to evaluate asymptomatic proteinuria and hematuria in school going children.

Material and Methods:

In this study urine samples were collected randomly from students of different classes of Government Kannada Primary School, K H B Colony, Bijapur, Karnataka (India). The mid stream urine samples were collected in clean

wide mouth jars, examined for the presence of proteinuria by dipsticks (Urosticks, ERBA Diagnostics, Mannheim, Germany) and microscopic examination for hematuria was performed. A single drop of urine sample was smeared on clean glass slide, examined under microscope with low and then high power with reduced condenser, which is a rapid, non invasive and inexpensive procedure. For routine urine examination, informed consent was taken from the parents as well as the principal of the school where urinalysis of school children was done and Ethical clearance of the study was obtained from Institutional Ethics Committee. In this study only asymptomatic school going children were included and the students who were admitted in the hospital for any renal or systemic disorder were excluded. This study was completed within one year.

Results:

Our study comprised of 100 subjects of both sexes, of 6 to 15 years of age group and we found that asymptomatic proteinuria and hematuria were more prevalent amongst the children between 10 to 13 years of age group with female preponderance i.e. 16 % of proteinuria and 5% of microscopic hematuria respectively (Table 1). Based on statistical analysis there was a significant difference in the pattern of proteinuria (Z value =2.22, P value= 0.027) but there was no significant difference in the pattern of hematuria (Z value = 1.02, P value = 0.307) between male and female students in the school children of 6-15 years age group.

Discussion:

Screening of kidney diseases by urinalysis in preschool children has been undertaken and

Table 1 - Sex wise presence of proteinuria and haematuria of male and female school children

Sex	Total	Proteinuria		Haematuria	
		Number	%	Number	%
M	64	6	9.37	2	3.12
F	36	10	27.77	3	8.33
Total	100	16	16	5	5

Table 2 - Age wise presence of proteinuria and haematuria of male and female school children

Age (Years)	Proteinuria		Haematuria	
	Male	Female	Male	Female
6-8	2	1	0	0
8-10	0	0	0	1
10-13	4	9	2	2
14-15	0	0	0	0
Total	6	10	2	3

found useful in many parts of the world using inexpensive tests such as urinary dipsticks and microscopy. In 2009 Badeli et. al. have investigated the prevalence of proteinuria and hematuria in 4 to 6 year old in daycare centers in Rasht (Iran). They have tested 1520 healthy children for proteinuria and hematuria and have reported a prevalence of 5.8 % for proteinuria and 3.2% for hematuria [6].

Dodge has studied a three consecutive urinalysis in 6 to 12 year old children at intervals of 3 to 6 weeks and it has been found that prevalence of proteinuria in all the three tests has been 0.942% in females and 0.33% in males and hematuria in 0.34% and 0.12% respectively [7]. In our study in the first dipstick samples the prevalence has been 16 % for proteinuria and 5 % for hematuria.

In the comparison to the Dodge study, we have found that proteinuria and hematuria has been more prevalent in females compared to males. The finding of isolated hematuria or proteinuria on random urine screening can be distressing to pediatric patients and their families. However, available information continues to support the fact that most patients have a benign and transient condition [8]. Isolated findings of proteinuria or microscopic hematuria in an otherwise healthy and asymptomatic child should be confirmed by a primary care physician prior to referral. Persistence of findings should lead to consultation with a pediatric kidney disease specialist, although this need varies by situation. With the increased performance by screening by urine dips and urinalysis in the pediatrician's office the discovery of asymptomatic blood or protein in the urine has become more common [8].

This study concludes that it would be possible to screen a large population of children at a relatively low cost providing the framework for further action in persistent cases that may lead to the prevention of any systemic or renal disorder. It is the responsibility of a primary health care physician to find out persistent proteinuria / haematuria by repeated testing of urine. This would avoid unnecessary alarm, referrals and investigations by a specialist, required for diagnosis of renal disease. Persistent proteinuria or haematuria could be associated with a renal pathology but transient findings are usually benign.

Hematuria and proteinuria are seen in a symptomatic latent period of systemic and renal diseases, early detection of these findings help in diagnosis of disease and also are helpful in deferring the progression of renal diseases.

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