Metabolic Study in Dysmorphic Hematuria

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Dear Sir,

Isolated asymptomatic microhematuria is a common clinical problem, since it has been found in 3-13% of the general adult population [1,2]. The evaluation of erythrocyte morphology in the urine, which was initially described by Birch and Fairley [3], has been used as a test to differentiate hematuria from renal or extra renal origin. The presence of dysmorphic erythrocytes indicates renal origin of the bleeding (e.g. glomerulonephritis), in contrast, eumorphic or isomorphic erythrocytes originate from a postrenal bleeding source (bladder tumors, nephrolithiasis, etc.) [4, 5].

We decided to investigate the prevalence of hypercalciuria and hyperuricosuria in patients with dysmorphic hematuria. In this study hematuria was defined as the presence of 10 or more red blood cells per high power microscopic field in the urine sediment in at least 3 urinalyses. In patients classified as having dysmorphic hematuria the investigations consisted of: 24-hour urinary protein excretion, serum creatinine, total hemolytic complement and/or C3, C4, C1q, serum hepatitis B surface antigen, sickle cell evaluation, serologic test for syphilis, antinuclear antibody, urological examination and abdominal ultrasound. From January to December 1990, we selected 69 patients (50 females and 19 males, aged between 18 and 72 years) with isolated dysmorphic hematuria followed up at our institution. In all patients the above tests were normal, patient and family history were noncontributory, the urological examination was negative and there was no evidence of urolithiasis. Calcium and uric acid excretion determinations on 24-hour urine samples, in at least 3 days were performed in all study subjects. Hypercalciuria was defined as 24-hour urinary calcium excretion above 4 mg/kg, and hyperuricosuria as urinary uric acid excretion above 750 mg/24 h in females and 800 mg/24 h in males. Twelve out of 69 patients (17%) had hypercalciuria, 6 other patients (9%) had hyperuricosuria, and both disorders were associated in 3 cases (4%). Overall, we detected these metabolic abnormalities in 21 of 69 patients (30%).

During recent years, evidence suggests that idiopathic hypercalciuria and hyperuricosuria may be as prevalent in adults as they are in children [6]. Presumably, these conditions would determine isomorphic hematuria, since the latter might occur as a result of lesions in tubular

and lower urinary tract walls provoked by microcrystal formation. However, no data has been published regarding the association between hypercalciuria or hyperuricosuria and dysmorphic hematuria.

Although dysmorphic hematuria has been suggested as indicative of glomerular disease, our findings of hypercalciuria and/ or hyperuricosuria in 30% of patients support the need for exclusion of these metabolic disorders in cases of isolated asymptomatic dysmorphic hematuria.

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