Abstract

Objectives: The monohydrate calcium oxalate lithiasis (MCO) is divided in two groups depending on the morphologic-crystal structure: papillary (anchorage point on a renal papilla lesion) and cavity (formed in a cavity with low urodynamic capacity). The minimal differences between urinary biochemistry of MCO makers in comparison with healthy population suggests that other factors different than urine biochemistry (professional activity, dietetic habits, systemic diseases) may be related with lithogenesis. The objective of this work is to study such factors, and compare them in both groups of MCO lithiasis (papillary and cavity).

Methods: We study 40 patients with MCO lithiasis (20 patients papillary and 20 patients cavitary). Medical history was performed (family history of lithiasis; associated diseases such as high blood pressure, diabetes, hyperuricemia, hypercholesterolemia, peptic ulcer disease; dietetic survey to evaluate phytate consumption; professions with high-risk of exposure to toxic agents); 24-hour urine biochemical tests, two-hour urine (pH), and serum biochemical profile were performed. Statistical analysis was performed using student's t test and chi-square.

Results: There is a high prevalence of family history of renal lithiasis (45%) without differences between groups. There are not differences in urine or blood biochemical tests. There is a low consumption of phytate-containing foods in both groups, without significant differences. There is a trend to a greater exposure to cytotoxic agents in the papillary group (45%) vs. the cavity group (25%). Hypertension and hyperuricemia are more prevalent in the cavity MCO group (α= 0.025 and α= 0.010, respectively). Peptic ulcer disease is more prevalent in the papillary MCO group (α= 2.025). There are no significant differences in prevalence of hypercholesterolemia or diabetes mellitus between groups.

Conclusions: Papillary MCO calculi are associated with a deficit of crystallization inhibitors (phytates), and disorders of the epithelium covering the renal papilla (cytotoxic agents exposure, peptic ulcer disease). Cavity MCO calculi are associated with a deficit of crystallization inhibitors (phytates) and a greater amount of heterogeneous nucleants (organic material induced by diseases such as hypertension, hyperuricemia, hyperglycemia, and hypercholesterolemia).

Keywords
