Commentary

The link between metabolic syndrome and nephrolithiasis: a white whale for understanding urinary stone disease

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The incidence of nephrolithiasis has risen steadily over recent decades, as has the rates of the metabolic syndrome. Several factors have contributed to this, including the increased incidence of obesity; more than 30% of Americans have a body mass index (BMI) >30. The etiologies for both are complex and multifactorial, but a consistently demonstrable relationship does exist between the two. Patients with either affliction are prone to the other, with the highest incidence of stones found in those with several factors leading to the metabolic syndrome (1). Furthermore, several of the disease process (hypertension, atherosclerosis, diabetes mellitus, or dyslipidemia) related to the metabolic syndrome each are associated with an increased risk of nephrolithiasis. The reason for this is unclear, and likely goes beyond just poor dietary factors leading to serum and urine chemistries ideal for renal calculus formation. No underlying mechanism has yet been identified correlating these processes to one another. Continued basic and translational research is needed to understand how these diseases are linked. While a growing body of epidemiologic data supports these associations, they only serve to highlight the importance of further research to truly understand the underlying mechanisms driving these links. As translational research continues to expand in the field of nephrolithiasis, newly generated knowledge will fill the gaps brought to light by these epidemiologic data.

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Footnote

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