TREATMENT GUIDE FOR PHYSICIANS

Calcium Kidney Stones

OVERVIEW

Kidney stones are common, affecting 1 in 11 people in the United States [1]. The most common form of the condition is the calcium oxalate stone. Current treatments include dietary modification, medications, and surgical treatment. Dietary modifications include increasing fluids, increasing dietary calcium, and decreasing oxalate in the diet (e.g. spinach, rhubarb, potatoes, nuts), and avoiding high dose Vitamin C. Medications may be used to reduce calcium in the urine or to reduce uric acid levels.

Studies suggest that the gut microbiome may play a role in calcium stone formation, and may therefore present a novel treatment approach. A low level of Oxalobacter formigenes has been identified as a risk factor for calcium oxalate stone formation [2-3]. O. formigenes breaks down oxalates in the gut, and if O. formigenes levels are low, oxalate levels can accumulate in the kidneys and potentially form calcium oxalate stones. The presence of O. formigenes is associated with a 70% reduction in the risk of recurrent kidney stones [4].

INDICATIONS FOR SMARTGUT TESTING

• History of calcium oxalate kidney stone
• Family history of calcium oxalate kidney stones
• History of antibiotic use (within 5 years) to which O. formigenes is sensitive including: azithromycin, ciprofloxacin, clarithromycin, clindamycin, doxycycline, gentamicin, levofloxacin, metronidazole, and tetracycline [5]

RELEVANT SMARTGUT RESULTS

• Low levels of O. formigenes [2]

CLINICAL TREATMENT SUGGESTIONS BASED ON SMARTGUT RESULTS

MONITOR THE FOLLOWING CLINICAL MARKERS:

• Level of O. formigenes
• Consider monitoring urine kidney stone risk panel (Uro-RiskTM)
**POTENTIAL OUTCOMES**

- Reduced rates of calcium oxalate stones
- Reduced risk of future calcium oxalate stones
- Potentially decrease the need for medications and/or surgical intervention for calcium stones
References