

Urolithiasis in Pregnancy: Beyond the Abstract

Urolithiasis in pregnancy is a major health concern and can potentially affect the well-being of both mother and foetus. It ranks as the most common cause of urological-related abdominal pain in pregnant women. [1] and can be a source of considerable morbidity to the mother and significant health risk to the foetus

The article gives a detailed insight on the epidemiology of the problem. The incidence of urolithiasis in pregnancy has been reported variedly from 1:188 to 1:4600, [2,3], although a recently reported study from a tertiary women's hospital in Pittsburgh, USA, failed to appreciate any rise in incidence of renal calculi in pregnant patients over the last 21 years. [4]. Dietary and lifestyle influence on urolithiasis and specific risk factors for stone formation in pregnancy are discussed in depth.

Pathophysiology of lithogenesis is complex and multi-factorial. It is a cascade of events that requires urine supersaturated with calculi-forming salts, lack of inhibitors of calculi formation, and retention of crystals or nuclei in kidney at anchoring sites that promote growth and aggregation. The article describes this process comprehensively, taking into account changes in pregnancy, which leads to some specificity in this group of women. During pregnancy higher prevalence of calcium phosphate (hydroxyapatite) calculi is observed [5]. Gestational hydronephrosis leads to urinary stasis and promotes crystallization, while increased renal pelvic pressure increases the likelihood of calculi migration and consequent symptoms. Additionally some metabolic factors in pregnancy promotes lithogenesis, such as increased filtered loads of calcium, sodium, and uric acid, absorptive hypercalciuria and serum oxalate super-saturation, secondary to placental 1,25-dihydroxycholecalciferol synthesis. [6] These changes in calcium homeostasis may explain the increased incidence of calcium phosphate lithiasis reported in pregnant women. [7]. On the other hand, some protective factors for urolithiasis are predominant during gestational state, such as augmented urinary excretion of urolithiasis inhibitors such as citrate, magnesium and glycoproteins, forced diuresis and alkaline urine, due to increased intrinsic purine use in the gestational state, and citruria neutralise the development of uric acid lithiasis. Overall as a result of this changed equilibrium, a similar incidence rate of urolithiasis has been observed in pregnant and non-pregnant women.

Diagnosis of urolithiasis in pregnancy has its specifics, resulting from the potential teratogenic effects of the X-ray emissions (particularly in the first trimester). This fact makes renal and bladder ultrasonography first line option for imaging in pregnant women with renal colic. Recently, non-contrast magnetic resonance urography (HASTE protocol) has been used in pregnant patients with urolithiasis with a better accuracy than US. [8-10]

Management of urolithiasis in pregnancy should be done through a multidisciplinary approach from a team that includes an urologist, an obstetrician, a radiologist, a neonatologist and an anesthesiologist. Most of the cases are initially treated conservatively, and the decision for more aggressive treatment is taken on a case-by-case basis. Pain management and medical expulsive therapy has their specificity in pregnancy. Active surgical treatment is recommended in cases of uncontrollable pain, persistent vomiting, fever, obstetric complications, solitary kidney, bilateral ureteral stones, ureteral stones bigger than 1cm and worsening of clinical settings. [11]

Written by:

Popov, E.¹, Buchholz, NP²

¹ U-merge (Urology in Emerging Countries), London, UK, Department of Urology, MHAT "Tokuda Hospital – Sofia", Sofia, Bulgaria

²*U-merge (Urology in Emerging Countries), London, UK. Department of Urological Surgery, Sobeh's Vascular and Medical Center, Dubai, UAE.*

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