FAST FACTS: Kidney Stones

Proper Names: Renal Calculi; Urolithiasis; Nephrolithiasis

Causes: The high levels of certain substances in the urine such as calcium, uric acid, or the amino acid cysteine usually cause kidney stones. High levels of these substances cause crystals to separate from the urine within the urinary tract. Kidney stones may also be caused by infection or genetic disorders. Calcium stones are the most common types of stones identified and most frequently found in men over age 40. Within the older population, dehydration is a common cause.

Problem: Kidney stones can be extremely painful and may become large enough to block the ureter (tube from the kidney to the bladder) and stop the flow of urine. Typically kidney stones cause an acute onset of flank (mid back) pain not necessarily related to physical activity or can cause lower abdominal pain on the side of the stone.

Assessment:
- Assess for pain in: abdomen, side of back, groin, & testicles
- Stones can cause:
  - Blood tinged urine
  - Chills
  - Fever
  - Nausea and vomiting
- In severe cases patients may experience anuria (no urine output)
- Lab assessments may include: urinalysis, calcium, phosphorus, uric acid, electrolyte levels and kidney function tests such as blood urea nitrogen and creatinine levels.
- Kidney stones may be verified by abdominal CT scan, MRI, x-ray, or ultrasound.

Treatment:
- Contact PCP and provide nursing measures to treat symptoms as needed (e.g. cooling measures for fever, positioning and warm compresses for pain management, etc.)
- Increase amounts of water (6-8 glasses per day) to facilitate passing of stones.
- Pain associated with passing kidney stones is often severe; patients frequently need opioid pain relievers to increase comfort.
- Medications, such as diuretics and sodium bicarbonate, or sodium citrate, may be prescribed to decrease stone formation and help flush stones from urinary tract.
- Surgery is generally required when stones are too large to pass on their own, are blocking urine flow or otherwise causing damage.

References