Monosodium Urate as a Biomarker for Obstructive Sleep Apnea

Abstract

The hypoxemia which results from obstructive sleep apnea causes three effects which quickly elevate the concentration of serum uric acid, often leading to the precipitation of monosodium urate crystals: cell catabolism which culminates irreversibly in the generation of excess uric acid fed into the blood; serum acidosis and hypercapnia which reduces the solubility of uric acid in the blood; and gradual reduction of the kidneys' glomerular filtration rate so that the removal of serum uric acid is slowed. Monosodium urate deposits are most likely to form in the extremities or in patellar, biceps, and quadriceps tendons, where they are detectable by ultrasonic means. Once formed, the crystals dissolve very slowly, which allows their detectability at a convenient time, thereby increasing their usefulness as a biomarker for obstructive sleep apnea before its life-threatening consequences develop.