Concomitant Acute Pyelonephritis, Acute Kidney Injury, and Obstruction Duration Affects Renal Outcome in Obstructive Uropathy by Urolithiasis

Jin Ho Hwang, Eung Hyun Lee, Jung-ho Shin, Su-Hyun Kim
Department of Internal Medicine, Chung-Ang University Hospital, Korea, Republic of

Objectives: Obstruction release from urolithiasis can be delayed, with a lack of suggested time for preventing the deterioration of renal function.

Methods: This is a study of 1607 patients with a urolithiasis-related obstructive uropathy between January 2005 and December 2015. Clinical outcomes were evaluated with respect to obstruction duration, acute kidney injury (AKI), and acute pyelonephritis (APN) accompanied by obstructive uropathy.

Results: When the prognosis was divided by the obstruction duration quartile, the longer the obstruction duration, the higher the probability of eGFR reduction >50%. In patients with concomitant APN or severe AKI during hospitalization with obstructive uropathy, an eGFR decrease of >30% and >50% occurred more frequently, compared to the others. In multivariate analysis, concomitant APN (HR=3.495), AKI (HR=3.284 for AKI stage II; HR=6.425 for AKI stage III) and an obstruction duration >7 days (HR=1.854) were independently associated with an eGFR decrease >50%. Tree analysis also showed that AKI grade 3, APN, and an obstruction duration >7 days were the most important factors affecting the renal outcome.

Conclusions: In urolithiasis-related obstructive uropathy, concomitant APN, AKI, and the elapsed time to release the obstruction were strongly associated with the deterioration of renal function after obstruction release.