

## BLADDER CANCER

## Urine alkalization might improve response to mitomycin C

Patients with a urinary pH of less than 5.5 are more likely to experience tumor recurrence after mitomycin C (MMC) treatment for non-muscle-invasive bladder cancer than those with more-alkaline urine, according to a new study from Japan. Based on this finding, the authors propose that modifying urine pH before MMC treatment might result in better outcomes.

Investigators retrospectively identified 124 patients who underwent transurethral resection of the bladder tumor with adjuvant intravesical MMC therapy at Keio University Hospital between 1985 and 2008. Urine pH was evaluated before each instillation of MMC and tumor recurrence was assessed using excretory urography, ultrasonography or CT every 1–2 years for 5 years after treatment.

Low urine pH (<5.5) during the MMC instillation period was found to be a significant risk factor for tumor recurrence ( $P=0.033$ ). Accordingly, individuals

with alkaline urine (pH >5.5;  $n=85$ ) had markedly better outcomes than those in the low pH group ( $n=39$ ;  $P=0.046$ ). Recurrence-free rates at 3 years and 5 years were 64.2% and 52.9% in patients with a urinary pH of 5.5 or more, and 41.9% and 38.4% in those with pH less than 5.5, respectively. No differences in toxicity were observed between the two groups.

Urine pH has previously been suggested to affect the absorption and cytotoxicity of intravesical MMC, but here the authors suggest differences in drug degradation might be responsible for their observations. They emphasize that in the future, urinary pH might be measured before intravesical MMC therapy is commenced, and if necessary urine alkalization, using salts such as sodium bicarbonate or potassium citrate, might be performed to increase MMC efficacy.

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**Original article** Maeda, T. *et al.* Urinary pH is highly associated with tumor recurrence during intravesical mitomycin C therapy for nonmuscle invasive bladder tumor. *J. Urol.* **185**, 802–806 (2011)