

## Is adjuvant amikacin to oral levofloxacin effective for prevention of febrile complications following transrectal prostate biopsy in patients with fluoroquinolone-resistant *E. coli* in the rectal flora?

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**Introduction & Objectives:** Recently, infective complications following transrectal ultrasonography guided prostate biopsy (TRPB) due to fluoroquinolone-resistant *E. coli* (QREC) has been increasing and the possession of QREC in rectal flora is thought to be a risk factor. Although culture-based antimicrobial selection was recommended as prophylaxis for patients with QREC, we reported that susceptible  $\beta$ -lactams was not sufficient to prevent febrile complications following TRPB (AUA2017 in Boston, EAU18 in Copenhagen). Amikacin (AMK) is promising as a prophylactic agent because of potent antimicrobial activity against QREC and excellent permeability to the prostate tissue. We evaluated the efficacy of adjuvant AMK to oral levofloxacin (LVFX) as antimicrobial prophylaxis for TRPB.

**Materials & Methods:** From October 2016 to September 2018, a total of 210 patients who underwent TRPB were enrolled. Patients with diabetes, urinary tract infections and use of immunosuppressive agents were excluded. Prior to TRPB, rectal swabs were cultured. Isolated *E. coli* was determined as QREC when their minimum inhibitory concentration (MIC) of LVFX was 4  $\mu$ g/mL or above according to the break point MIC by the Clinical and Laboratory Standards Institute criteria. As antimicrobial prophylaxis for all patients, single oral 500mg of LVFX was administered two hours before TRPB. For patients with QREC in rectal flora (QREC carriers), single dose of 400mg of AMK was added intravenously before TRPB. All biopsies were carried out through a standard 12-core approach with local periprostatic anesthesia. Additional targeted biopsy was done in some patients. The patients were followed up for 4 weeks after TRPB and febrile infective complications were recorded.

**Results:** Twenty-five QREC carriers (11.9%) were detected in this study. All of *E. coli* isolated from QREC carriers was sensitive to AMK. A total of 4 patients (1.9%) suffered from febrile complications following TRPB. Two of them were QREC carriers and the others were non-QREC carriers. The incidence of febrile complications following TRPB among QREC carriers was higher than that of non-QREC carriers ( 8.0%, 2/25 vs 1.1%, 2/185 ;  $p = 0.07$ , Fisher's exact test ).

**Conclusions:** The prophylactic antimicrobial protocol of adjuvant AMK to oral LVFX was not so effective in QREC carrier. We concluded the culture-based antimicrobial prophylaxis had a limitation of complete prevention of febrile complications following TRPB. While escalation or further augmentation of prophylactic agents will reduce febrile complications in a short time, these will accelerate the increase of resistant bacteria in a long time and violate the principal of good antibiotic stewardship. For resistant strain carriers, the switching to transperineal prostate biopsy should be considered.