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Which antibiotic prophylaxis to use for urologic procedures in patients at risk for infective endocarditis: a report on two cases

Quale profilassi antibiotica per interventi urologici in pazienti a rischio per endocardite infettiva? Considerazioni su due casi clinici

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INTRODUCTION

Case 1: a 68-year-old male affected with diabetes and hypertension, had a known mitral valve prolapse with slight regurgitation. Due to elevated prostate specific antigen values, he received multiple transrectal prostate biopsies, with levofloxacin (a single 500 mg per os dose) administered prophylactically just before the procedure. A few days after surgery the patient developed moderate fever (max 38°C): three months later infectious endocarditis of the mitral valve was diagnosed; blood cultures were positive for *Enterococcus faecalis*. Six weeks of antimicrobial treatment were followed by surgery (mitral valvuloplasty) because of severe mitral regurgitation.

Case 2: a 69-year-old man underwent transurethral prostate resection; a single dose of ceftazidime (2g) was administered before surgery. At four months from the procedure the patient was diagnosed with T9-T11 spondylodiscitis; one month later he had stroke; six months after the urological procedure IE was finally diagnosed: six out of six blood samples were culture positive for *E. faecalis*, and an echocardiographic scan revealed a previously unknown prolapse of the posterior mitral leaflet, which appeared thickened and mixomatous, with a small vegetation on the atrial side. Medical treatment was followed by full recovery.

DISCUSSION

For patients undergoing urological procedures, there is general consensus on the indication for

antibiotic prophylaxis when preoperative urines are not sterile, and for transrectum prostate biopsy. Most authors also recommend antimicrobial prophylaxis for transurethral prostate resection; commonly recommended antibiotics include quinolones and cephalosporins. In patients with conditions predisposing to the development of infectious endocarditis, guidelines recommend antibiotic prophylaxis of IE for prostatic surgery, cystoscopy, and urethral dilatation, with ampicillin or amoxicillin (vancomycin in patients allergic to beta-lactams) alone in moderate risk patients and plus gentamicin in high risk patients [1-3]. Both our patients, affected with mitral valve prolapse with valvular regurgitation and undergoing prostatic surgery, had a clear indication for IE prophylaxis. The antimicrobials administered preoperatively to our patients (a quinolone and a beta-lactams) may have constituted an appropriate choice for standard surgical antimicrobial prophylaxis, even if it may be noted that first generation cephalosporins are generally preferred to third generation ones, and that ciprofloxacin has been more widely used than levofloxacin. With regard to IE prophylaxis, both ceftazidime and levofloxacin are not part of recommended prophylactic regimens: failure to prevent IE by these molecules may result by infection with resistant organisms (*E. faecalis* is intrinsically resistant to beta-lactams, and resistance to quinolones is on the rise), or by pharmacokinetic factors (blood concentrations may be insufficient to prevent IE and possibly other blood stream infections). The fluoroquinolones such as ciprofloxacin and ofloxacin have in vitro activity against enterococci, and may be useful for treating some enterococcal urinary tract in-

fections, but their effectiveness for enterococcal infections in general has not been demonstrated convincingly [4, 5]. For the same purpose, the utility of newer compounds such as levofloxacin and grepafloxacin was predicted to be limited, at best [5]. Whereas the urinary levels of fluoroquinolones are high and suitable in order to locally suppress enterococci, the blood levels are not adequate to prevent an endocarditis arising from a bacteremic episode. Our report of two episodes of enterococcal IE following urological surgical procedures performed after antimicrobial prophylaxis, underlines the need to have a careful assessment of the risk for IE in each patient candidated to surgery. When conditions predisposing to IE emerge, care should be dedicated to the choice of an antimicrobial prophylaxis

lactic regimen integrating the need for IE prophylaxis with the effort to prevent other surgical infections. While a single molecule regimen may appear desirable in order to simplify procedures and reduce risks and costs, this may not be feasible: while recommendations for both urological surgery prophylaxis and IE prophylaxis are not supported by randomized clinical trials, available evidence should probably induce a cautious, dual regimen: a cephalosporin or quinolone may be appropriate for wound site infection prophylaxis, while IE prophylaxis requires ampicillin or amoxicillin (plus gentamicin in high risk patients).

Key words: infectious endocarditis, urologic procedures

SUMMARY

In urologic surgery, antibiotic prophylaxis is generally recommended for transrectal prostate biopsies and transurethral prostate resection. While a fluoroquinolone (such as ciprofloxacin or levofloxacin) may be appropriate in most instances, patients at risk for infectious endocarditis (IE) may require a different regimen, effective

also against Enterococcus species. We describe and comment on the cases of two patients who, following urologic procedures and antibiotic prophylaxis, developed Enterococcus faecalis endocarditis. We also propose an antibiotic prophylactic regimen for urologic procedures suitable for patients at risk for infectious endocarditis (IE).

RIASSUNTO

Nella chirurgia urologia, la profilassi antibiotica è generalmente raccomandata nella biopsia transrettale e nella resezione transuretrale della prostata. Mentre un fluorochinolone (ciprofloxacina o levofloxacina) può essere appropriato nella maggior parte dei casi, i pazienti a rischio di sviluppare una endocardite infettiva (EI) possono richiedere

uno schema diverso, efficace anche verso gli enterococchi. Descriviamo 2 pazienti che in seguito ad interventi urologici e profilassi antibiotica hanno sviluppato una endocardite da *Enterococcus faecalis*. Proponiamo inoltre uno schema di profilassi antibiotica per gli interventi urologici adeguato per i pazienti a rischio di EI.

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