


Susceptibility testing of *Escherichia coli* isolates from urines: are we at risk of reporting false antibiotic resistance to co-amoxiclav?

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Sir,

The BSAC recently published a change to the recommended inhibition zone diameter breakpoint for testing susceptibility of Enterobacteriaceae to amoxicillin/clavulanate (co-amoxiclav), whereby the maximum zone diameter for inferring resistance was increased from 14 to 20 mm. There was no change to the MIC breakpoint, which remains at 8 mg/L. This change resulted in a significant increase in the proportion of clinical isolates reported as resistant in our laboratory, which necessitated the release of additional antibiotic susceptibilities to clinicians.

The purpose of this study was to investigate the co-amoxiclav MICs for a group of clinical isolates of Enterobacteriaceae that were inferred to be resistant according to the current BSAC criteria and compare these with two commercially available testing systems for determining MICs.

Isolates of *Escherichia coli* from urine samples submitted to South Devon Healthcare NHS Foundation Trust for culture between 7 and 21 June 2011 were tested for susceptibility to co-amoxiclav by disc diffusion in accordance with BSAC methodology. The growth medium was Iso-Sensitest PO7794 agar (Oxoid, Basingstoke, UK) and amoxicillin/clavulanate 30 µg discs (20 µg of amoxicillin/10 µg of clavulanate; Oxoid, Basingstoke, UK) were used. Zones of inhibition were measured after an incubation period of 18–20 h at 35°C. *E. coli* isolates with a zone diameter of 14–20 mm were selected for determination of MIC, performed by Vitek 2 (bioMérieux) according to the manufacturer’s instructions. Etest (bioMérieux) was also performed according to the manufacturer’s instructions (2:1 amoxicillin/clavulanate ratio), with the exception of using Iso-Sensitest agar as outlined in BSAC recommendations. Identification of *E. coli* was confirmed by API 20E (bioMérieux). The validity of all three testing methods was assured by inclusion of the control strain *E. coli* NCTC 10418.

A total of 91 isolates had an inhibition zone diameter of 14–20 mm by the disc diffusion method during the 2 week period and would have been interpreted as resistant according to the modified BSAC guidelines. Eighty-eight of the isolates (96.7%) were susceptible (MIC ≤ 8 mg/L) when tested by Vitek 2 (see Figure 1a). The three resistant strains had MICs of

![Figure 1](image-url)

**Figure 1.** Disc diffusion inhibition zone diameters for *E. coli* urine isolates (*n* = 91) compared with MICs as determined by (a) Vitek 2 and (b) Etest.
Use of therapeutic drug monitoring to treat Elizabethkingia meningoseptica meningitis and bacteraemia in an adult

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Sir, 

Elizabethkingia meningoseptica, formerly Chryseobacterium meningosepticum, is a non-fermentative Gram-negative bacterium and rare cause of nosocomial meningitis in adults.1,2 Selection of appropriate therapy is difficult due to inherent resistance. We report a case of E. meningoseptica meningitis and bacteraemia in which therapeutic drug monitoring (TDM) allowed optimization of pharmacokinetic and pharmacodynamic targets and microbiological cure.

A 73-year-old patient, previously treated with craniofacial irradiation for nasopharyngeal carcinoma, had a progressive decline in cognitive function and magnetic resonance imaging showed radiation-induced encephalomalacia with a new large right frontal cyst with mass effect in the right frontal lobe. The patient was admitted for open fenestration of the intracranial cyst. Dexamethasone was initiated post-craniotomy as standard of care for reduction of swelling.

On post-operative day (POD) 3 the patient developed lethargy, fever and neck stiffness. The patient underwent a lumbar puncture, which showed cerebral spinal fluid (CSF) pleocytosis (1572 cells/mm³) with neutrophilic predominance (87%), increased protein (253 mg/dL) and slight hypoglycorrhachia (54 mg/dL). Gram staining of CSF and blood revealed Gram-negative bacteria. The patient developed septic shock and empirical meropenem was initiated. The use of norepinephrine was required intermittently for 48 h for blood pressure support but the patient never suffered any renal or hepatic impairment.

On POD 6 the organism was identified as E. meningoseptica. Because of clinical deterioration, antibiotics were empirically switched to piperacillin/tazobactam, rifampicin and vancomycin. Blood cultures from POD 6 also grew E. meningoseptica. The

References


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Transparency declarations

None to declare.