In Vitro Susceptibility of *Escherichia coli* O157 to Several Antimicrobial Agents

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We evaluated the antimicrobial susceptibility of six strains of *Escherichia coli* O157 (*E. coli* O157) isolated from patients in Yamaguchi Prefecture between June and July, 1996. Seven antimicrobial agents that were expected to retain a high concentration in the intestine were selected. The minimum inhibitory concentration (*MIC*) and the minimum bactericidal concentration (*MBC*) of ciprofloxacin, polymyxin B, cefoperazone, and kanamycin for each strain were ≦6.25μg/mℓ. However, the *MIC* of fosfomycin was 3.13-100μg/mℓ, and its *MBC* was ≧100μg/mℓ. The *MIC* of ampicillin and tetracycline was >100μg/mℓ in some strains. In a time-kill study of *E. coli* O157 at a drug concentration of 12.5μg/mℓ, about 10^4 colony forming units/ml of E. coli O157 were eradicated within 10 min by ciprofloxacin, within 30 min by polymyxin B, within 4h by cefoperazone, and within 16h by kanamycin. These results suggest that the new quinolones with a poor absorption rate in the intestine (such as ciprofloxacin and norfloxacin) are effective against *E. coli* O157. When oral administration is impossible, bile excreting cephem antibiotics (such as cefoperazone, ceftriaxone, and cefotetan) may be useful.

Key words
Escherichia coli O157; enterohemorrhagic *E. coli*; antimicrobial suscceptibility; ciprofloxacin; polymyxin B