

The Diversity of *Escherichia coli* Producing Extended-Spectrum ss-lactamases in Spain: Second Nationwide Study

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The prevalence of extended-spectrum ss-lactamase (ESBL)-producing *Escherichia coli* (ESBLEC) in Spain increased 8-fold from 2000 to 2006. ESBL type, clonal relationship, antimicrobial susceptibility and clinical data about infections caused by ESBLEC are evaluated in a second nationwide study developed in 2006. From 1008 clinical isolates obtained over 2 months from 44 hospitals, 254 were used for further analysis. ESBL production was evaluated by synergy test, PCR and sequencing.

Antimicrobial activity was evaluated by microdilution. Clonal relationship was evaluated by Repetitive Extragenic Palindromic-PCR (RER-PCR). The O25b subtype and the new *afa* operon FM955459 were determined by triplex PCR in isolates producing CTX-M-15. Multilocus sequence typing (MLST) was performed on these isolates. 72% of all ESBLs were of the CTX-M type, 26.8% of the SHV type and 1.2% of the TEM type. The most prevalent ESBLs were CTX-M-14 (119 isolates), SHV-12 (68 isolates), CTX-M-15 (37 isolates) and CTX-M-9 (21 isolates). By REP-PCR, 214 clones were detected. All but 5 CTX-M-15 ESBLEC isolates corresponded to the international O25b/ST131 clone.

This clone had not been detected in the first study (2000). Epidemiological and clinical features were studied in 304 representative patients. Sixty percent of the patients were older than 60 and had non-fatal underlying diseases, and 55% had recently received antibiotics. Urinary tract infections accounted for 71% of cases and 9% were bacteremic.

There has been a significant increase in ESBLEC in Spain, most of them being CTX-M-producing isolates, including the pandemic O25b-ST131. SHV-12-producing *E. coli* remains an important cause of community-acquired infection.

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