

O113

2-hour Oral Session

MDR Enterobacteriaceae: clinical epidemiology and outcomes

A longitudinal population-based study of extended spectrum beta-lactamases in the Netherlands

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Background: Extended-Spectrum β -lactamases (ESBLs) are a public health concern, yet reliable estimates of ESBL prevalence and duration of carriage in the general population and associated risk factors are largely unknown. This is an interim report of an ongoing observational study in the Netherlands to provide these data.

Material/methods: Since November 2014, a random sample of ~2000 inhabitants of the Netherlands was drawn monthly from Dutch population registries and invited to complete online an epidemiological questionnaire and to provide a faecal sample. If applicable, subjects were also asked to submit one sample from their dog or cat and additional questions were asked in case of a participating dog or cat. All ESBL-carriers, and a random sample of non-ESBL-carriers were asked to provide follow-up faecal samples after 1 and 6 months. Faecal samples were plated either directly or after enrichment in 3 ml Luria Bertani broth with 1 mg/L cefotaxime onto MacConkey agar both supplemented with 1 mg/L cefotaxime. If there was growth, colonies were differentiated by using matrix-assisted laser desorption/ionisation time-of-flight analyser (MALDI-TOF). *Escherichia coli*, *Enterobacter cloacae* and *Klebsiella pneumoniae* isolates were screened for CTX-M-9 or CTX-M-1 group ESBL genes by PCR. Isolates negative for these ESBLs were screened by micro-array analysis for CTX-M-group 2, 8 and 25, TEM and SHV. Gene types were subsequently determined by sequencing.

Results: 21,383 subjects were invited till August 2015 (10 months of study), of which 3,921 (18.3%) completed the questionnaire, 1,660 (42.3%) provided a faecal sample and 352 provided a sample of a dog or cat (from 1,981 dog/cat owners). The median age of subjects providing a faecal sample was 56 years (Q1-Q3 40-66) and 47.1% was male. 53 participants were ESBL-carrier (3.2% 95%CI: 2.4-4.2%). The most prevalent genes were *bla*_{CTX-M-15} (n=18; 34.0%), *bla*_{CTX-M-14} (n=8; 15.1%) and *bla*_{CTX-M-1} (n=8; 15.1%). A follow-up faecal sample after 1 month was available from 274 participants (304

invited) including 31 from the ESBL-carriers; 4 subjects (1.7%) acquired ESBL-carriage, and 13 (41.9%) lost carriage. Data from the 6-month follow-up is not yet available.

Conclusions: In this population-based study, the (preliminary) unadjusted ESBL prevalence in the open population was 3.2%. The main ESBL-type found is *bla*_{CTX-M-15}, and 41.9% of carriers had lost carriage, while 1.7% of non-carriers acquired carriage after 1 month.