

O1142 Outbreak of OXA-48 carbapenemase-producing *Enterobacteriaceae* in a haematologic ward with an uncommon environmental reservoir

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Background: Hospital environment, such as sinks and drains, are increasingly highlighted as potential reservoirs of carbapenemase-producing enterobacteria (CPE).

Materials/methods: We investigated a long-lasting outbreak of OXA-48 CPE (mostly *Citrobacter freundii*) in a hematologic ward (74 beds, 4 units) of a French teaching hospital starting in 2016. In October 2017, a specific unit with dedicated nurses was created for all colonized and/or infected patients with CPE. All patients in the hematologic ward were screened for CPE at admission and weekly thereafter. Nevertheless, after October 2017, 9 additional sporadic acquisitions were identified, without any epidemiological link between them. We conducted (June 2018) an environmental investigation of drains and toilets (rim jet) to identify an environmental reservoir. All samples (patients and environment) were cultured on chromID CARBA SMART® (Biomérieux) and carbapenemase types were confirmed by PCR (Xpert Carba-R®, Cepheid). Strains were compared by infrared spectroscopy (Biotyper®, Bruker). A matched case control study was conducted to evaluate risk factors of CPE acquisition (length of stay and room number). Cases were patients who acquired OXA-48 CPE between 01/2017 and 06/2018. Matching criteria were unit and hospitalisation period.

Results: From 10/2017 to 06/2018, 9 sporadic acquisitions of OXA-48 CPE were detected, including 6 *C. freundii*, 3 *Klebsiella sp* and 1 *Enterobacter cloacae* with a median of acquisition of 17 days. Six patients developed CPE infections including 3 bacteremia. The environmental investigation identified 7/74 toilets and 1/39 drains positive for OXA-48 CPE (7 *C. freundii*, 1 *Enterobacter sakazakii*, 1 *Escherichia coli*) in the hematologic ward compared to 2/92 positive toilets in others wards within the hospital. Infrared spectroscopy comparison of *C. freundii* isolates revealed clonal similarities between all cases and the environment. Univariate analysis retained one room with a positive rim jet as significantly associated with OXA-48 CPE acquisition (OR=6, 95% IC 1.2-29.7, p=0.03).

In addition to routine strict infection control measures, an intensive cleaning program was decided (descaling and bleach) and all toilet bowls and tanks were changed. No additional cases were detected since June 2018.

Conclusions: This study highlights that toilets can be a possible source of transmission of OXA-48 CPE.



