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Clonal spread of vanA positive *E. raffinosus* in a Belgian nursing home

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INTRODUCTION

Outbreaks of vancomycin-resistant Enterococci (VRE) usually occur in hospital settings, e.g., haematology wards or clinics, with severely debilitated, immunocompromised patients. The majority of VRE outbreaks is caused by *E. faecium* and *E. faecalis*, whereas vancomycin-resistant organisms of other species appear only sporadically. Only a few studies described the clonal spread of vancomycin-resistant *E. raffinosus* so far. Thus, *E. raffinosus* is usually represented by few isolates in VRE survey studies or collections. Here we describe the clonal spread of vanA positive *E. raffinosus* in a Belgian nursing home.

MATERIALS & METHODS

Species identification of isolates sent to the Belgian National Reference Centre (NRC) for Enterococci was confirmed by Malditof Mass Spectrometry and by sod/ddl/16S rDNA-PCR and sequencing. Antibiotic susceptibility was determined by using standard bacteriological procedures according to EUCAST. The following antibiotics were tested: ampicillin, vancomycin, teicoplanin, linezolid and tigecycline. PCR was applied to identify VRE genotypes. Typing was done by using PFGE. The following *E. raffinosus* strains were used as control strains: reference strain LMG12888T, clinical isolates O8L1270, 111-005886 (own collection) and 8991/64, UW11260, UW7358, UW10887, C-31135 kindly provided by R. Willems, G. Werner, K. Hegstad, and P. Damborg).

RESULTS

In the spring of 2015, the NRC received 2 *E. raffinosus* strains for confirmation of vancomycin resistance from 2 different hospitals from the same region (Fig. 1). The 1st strain was isolated during a screening procedure due to an outbreak of vanA positive *E. faecium* in hospital 1. Due to this *E. faecium* outbreak, hospital 2 implemented VRE-screening and isolated the 2nd strain from a hemodialysis patient. Further investigation indicated that both patients resided in the same nursing home. Public Health Authorities were contacted. Screening from most exposed contacts was performed and resulted in the identification of an additional case in the nursing home. All 3 colonized residents lived on the same floor (Fig. 2) of the nursing home and used a collective care infrastructure. The strains were sent to the NRC. PFGE-typing indicated clonal spread of a vanA positive *E. raffinosus* clone (Fig. 3). Additional screening of less exposed residents didn't result in detection of extra cases. Compliance with hygiene procedures was optimized and no further cases appeared.

Fig 1. Map of Belgium

Fig 2. Floorplan Nursing home

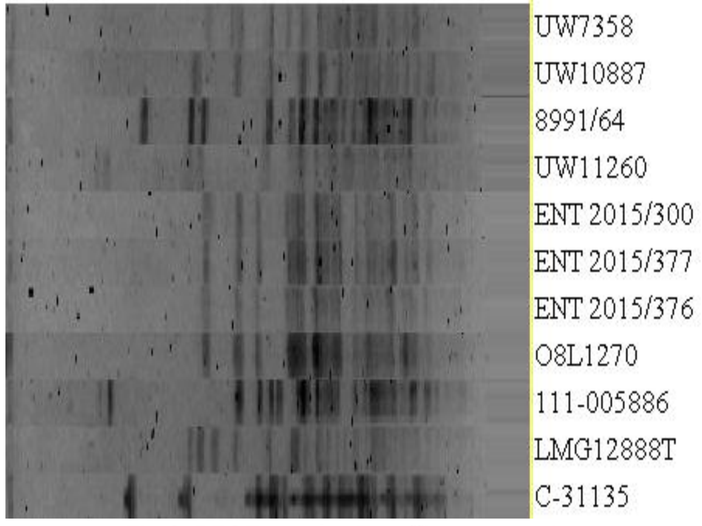

Fig 3. PFGE results *E. raffinosus* strains

CONCLUSIONS

E. raffinosus may be an important reservoir of van-genes and may contribute to the dissemination of vancomycin resistance. Therefore, *E. raffinosus* should be taken into consideration when implementing control procedures for enterococcal infections. Furthermore, such strains should be submitted to the NRCs for confirmation and surveillance.

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