Vancomycin-resistant Enterococcus outbreak on the nephrology department: How to manage it at the dialysis unit

Olbrechts C.[1], Crols S. [1], Heemeryck L. [1], Bosmans P. [2], Van Paesschen N. [1], Tielemans C. [1], Nursing Staff Hemodialysis Unit UZ Brussel

[1]UZ Brussel, Nephrology department, Brussels, Belgium [2] UZ Brussel, Team Infection Control, Brussels, Belgium

Introduction

- Enterococci are part of a normal intestinal flora, but some varieties cause infections in debilitated patients.
  - Few are resistant to glycopeptide antibiotics: the Vancomycin-resistant Enterococcus (VRE).
  - Reside mainly in intestines, prolonged survival in there.
- VRE constitutes a risk for developing nosocomial infections:
  - Transmitted by contaminated hands,
  - Long survival on contaminated environment.

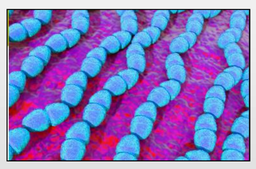

Figure 1. VRE

- When there is a sudden increase in detecting VRE-colonization or -infection in a particular time and place: a VRE outbreak occurs.
  - Before 2014, only few VRE-cases in Belgium.
  - Since then, increasing amount of uncontrolled epidemics. Mainly on high-risk wards, like intensive care unit or hemodialysis.

The outbreak

In June 2016, the number of VRE-patients at the nephrology ward increased from 1 positive screening in March and 3 in May up to six: 3 patients tested positive on routine rectal VRE-screening and 3 had a VRE-positive clinical sample. Five of the VRE-patients were in need of hemodialysis and were treated at the dialysis unit. Therefore, superior to the additional precautions (figure 2), supplementary actions have been taken on the dialysis unit.

Interventions

- Multidisciplinary outbreak team (representatives of hospital board, infection control, nephrology, infectiology and dialysis):
  - Supervision of outbreak
  - Coordination of interventions
  - Consultation of health care government
- All hemodialysis patients were screened for VRE with a rectal swab, including all ambulatory patients and external low care units.
  - Repeated screenings:
    - weekly hospitalized patients;
    - monthly ambulatory patients with previous positive VRE-screening until 3 consecutive negative screenings.
- Limitation of VRE-transmission by a range of actions:
  - Treatment of VRE-patients in a dedicated dialysis room → no possibility of contact with non-colonized patients.
  - Dedicated nurses: same nurses a week in the isolated dialysis room.
  - Single (patient) use materials with colonized patients. When impossible, intensive cleaning took place.
  - All patients, as well as their drivers, were educated in proper hand hygiene.
  - Re-education in hand hygiene of the (para-)medical staff.
    - Internal incognito tracing of proper hand hygiene.
  - Extra attention on communication when internal and transmural transfer of a patient.
  - The quality of housekeeping was checked using UV-light testing.

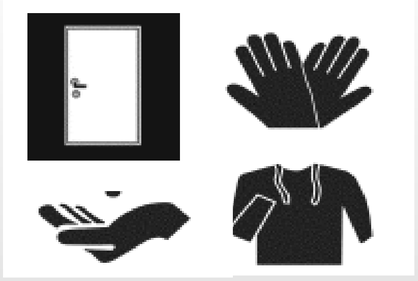

Figure 2. Additional precautions

- Termination of contact precautions after 3 consecutive negative VRE-screenings, with one month in between.
  - Re-screening with every hospitalization and when using antibiotics.
- Screening patients when returning from another dialysis center.
  - Isolation as a VRE-patient until negative result of screening is known.

Results

During the following 6 months 4 more patients in need of dialysis screened positive for VRE. Due to their precarious situation, some of the VRE-patients passed away. Most of the VRE-colonized patients got out of isolation after 3 consecutive negative screenings. Currently there are still 3 chronical VRE-patients on the dialysis unit.

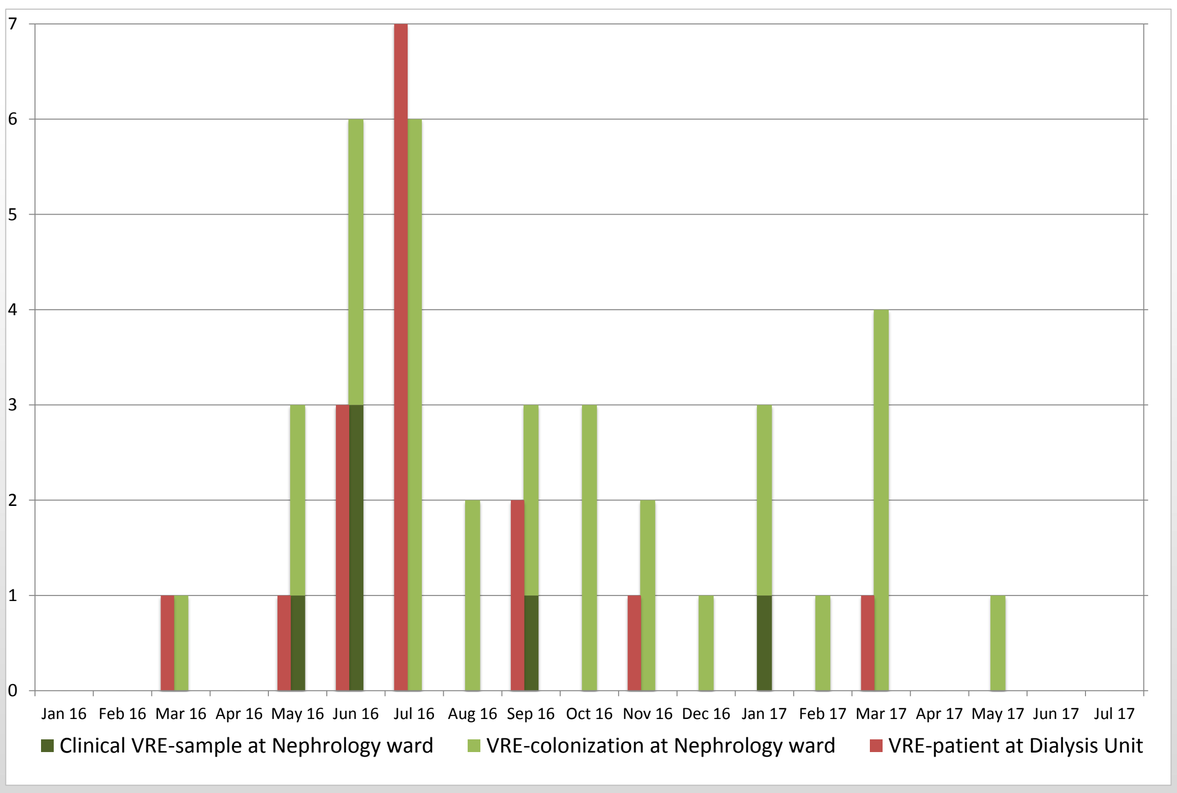

Figure 3. Incidence of VRE-patients

One year after the outbreak, in July 2017, an adaptation of the screening policy was made: weekly screenings of hospitalized patients and with every new hospitalization on the nephrology ward stopped. With every patient transfer from an other hospital, a VRE-screening is still being performed.

Conclusion

The outbreak and its introduced actions had a large impact on all patients and health care workers. The situation will never return to the previous set-up, continuous vigilance is required. Hand hygiene campaigns and re-education of patients and health care workers on regular intervals are necessary.

Universitair Ziekenhuis Brussel

Corresponding author: celine.olbrechts@uzbrussel.be