Does Screening for Vancomycin Resistant Enterococcus (VRE) Prevent Infection: A Single Centre Retrospective Cohort Study in Alberta

Adgeh I. MBBS *, Taylor G. MD **, Buchanan-Chell. M***, Smith S. MD**

BACKGROUND

Although Enterococcus is a normal flora of the gastrointestinal tract and female genital tract, it has the potential to cause nosocomial infections especially in the immunocompromised.

Since the 1980’s, there has been an increase in Vancomycin resistant Enterococcus (VRE) infections mostly in hospitalized patients.

However, there is currently significant variation regarding VRE screening in Canada. Some hospitals continue to screen while others have discontinued.

OBJECTIVE

The University of Alberta Hospital conducts prospective surveillance for all VRE infections.

In 2015 the hospital modified its screening policy in whereby transplant and hematology/oncology patients are screened due to the higher risk of VRE infection in these groups.

We assessed the utility of our current screening policy by evaluating the incidence and mortality rate of VRE infection from 2013-2019.

METHODS

This is a single center retrospective cohort study using data prospectively collected by the Infection Prevention and Control department at the University of Alberta Hospital and Mazankowski Heart Institute, a tertiary care 700 bed hospital.

The hospital provided a wide variety of surgical and medical services including a large transplant program and management of hematologic malignancies.

All patients with a positive culture for VRE were reviewed to determine presence of infection. VRE infection was determined using standard NHSN definitions.

Attributable mortality was determined retrospectively by chart review.

We compared rates of hospital acquired VRE infection in the screened and non-screened populations and attributable mortality rates between 2013-2019.

RESULTS

TREND OF VRE INFECTION

Between 2013 and 2019, there were 115 non blood stream (NBSI) and 46 blood stream infections (BSI).

The average time to infection after admission was 37 days.

The rates of VRE BSI and NBSI in the screened and unscreened increased significantly.

RATE OF INFECTION

Prior to screening change, the mean VRE infection rate in the hematology/oncology/transplant population was 2.4/10,000 patient days but increased to 6.80/10,000 patient days between 2015-2019. The rate in the unscreened population was 0.46/10,000 patient days and increased 1.14/10,000 patient days post change.

MORTALITY

The attributable mortality of VRE infection was 15.6% and 10.9% in the screened (transplant and hematology/oncology patients) and non-screened group respectively (OR 1.52, 95% CI 0.58-3.98).

CONCLUSION

Despite screening and isolation, VRE infection rates were much higher in hematological/oncology and transplant patients and was associated with higher attributable 30-day attributable mortality, although not statistically significant.

However, rates of increase appeared to be lower in the screened group than in the non-screened group. Our current screening policy captures this vulnerable population; however, further work needs to be done to identify optimal prevention.

** Department of Medical Microbiology, University of Alberta (adeghe@ualberta.ca)
*** Department of Infectious Diseases, University of Alberta.
***Department of Infection control and Prevention, Alberta Health Services.

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