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ePoster Viewing

Multifaceted approaches to reduce MDR Gram-negative infections

ARE CONTACT PRECAUTIONS FOR EXTENDED SPECTRUM BETA-LACTAMASE PRODUCING GRAM NEGATIVE RODS WARRANTED IN AREAS OF HIGH ENDEMICITY?

S. Mahmood¹, R. Khowaja², S. Musani², N. Nosheen¹, R. Roshan²

¹Medicine, Aga Khan University, Karachi, Pakistan ; ²Nursing, Aga Khan University, Karachi, Pakistan

Background

To control the spread of Extended Spectrum Beta-Lactamase producing Gram Negative Rods (ESBL-GNR) a combination of antibiotic stewardship, stringent standard and contact precautions is recommended. However, effective contact precautions are hampered in areas of high endemicity and low resources due to a large number of patients requiring precautions leading to a substantial drain on resources and eventual 'sign fatigue'. We therefore assessed the effect of discontinuing contact precautions for ESBL-GNRs on the overall rates of multi-drug resistant organism (MDRO) transmission (including ESBL-GNRs).

Methods

We performed an interrupted time series study at a 593-bedded tertiary care hospital in Karachi, Pakistan. As of April 2013, patients colonized/infected with ESBL-GNRs were no longer placed in contact precautions. However the usual training on standard precautions was continued and contact precautions remained in place for other MDROs. Using CDC's measures of proxy infection, monthly overall Infection/Colonization Incidence Rates (ICIR) defined as the percentage of patients found to have an MDRO three days after admission to a unit, were assessed six months before and after implementation of this policy. The average number of patients requiring transmission based precautions per month was also assessed. During this period, no change in the antimicrobial stewardship program was made nor was any institute-wide hand hygiene initiatives launched.

Results

In the 6 months prior to discontinuing ESBL-GNR isolation, an average of 42 patients per day required any form of transmission based precautions (0.89% of admissions/month), which decreased to 24 patients per day (0.49% of admissions/month) once isolation was discontinued. Over the 6 months before and after the implementation, 2734 patients were identified to be colonized/infected by an MDRO, of which 1634 were ESBL-GNRs. In the 6 months prior to discontinuing isolation precautions, 773 patients colonized/infected with an ESBL-GNR were identified of which 219 (28.3%) acquired this from the hospital. In the subsequent 6 months following discontinuation of isolation, 861 patients with ESBL-GNR were identified of which 207 (24.0%) had acquired this from the hospital. The average monthly ICIR for ESBLs, while isolation was in place was 0.62% (95% CI \pm 1.54), which decreased slightly to 0.52% (95%CI \pm 2.3) after isolation was stopped. On the other hand, the ICIRs of the other MDROs remained unchanged.

Conclusions

The transmission rate of ESBL-GNR remained unchanged despite discontinuation of contact precautions. This may be reflective of the relatively poor transmissibility of ESBL *E.coli* (which forms the bulk of ESBL-GNRs at our institution). However, as compliance to the components of contact precautions were not assessed during this period, the lack of increase may also be due to pre-existing suboptimal isolation. However, hospital in areas endemic to ESBL-GNRs and with limited resources, should assess the need for contact precautions for these organisms.