Title of the article

Relationship between the prevalence of methicillin-resistant Staphylococcus aureus infection and indicators of nosocomial infection control measures: a population-based study in French hospitals.

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Abstract

OBJECTIVE: To assess whether infection control indicators are associated with the prevalence of methicillin-resistant Staphylococcus aureus (MRSA) infection in French hospitals.

METHODS: We linked the database for the 2006 national prevalence survey of nosocomial infection with the database of infection control indicators (comprised of ICALIN, an indicator of infection control organization, resources, and action, and ICSHA, an indicator of alcohol-based handrub consumption) recorded from hospitals by the Ministry of Health. Data on MRSA infection were obtained from the national prevalence survey database and included the site and origin of infection, the microorganism responsible, and its drug resistance profile. Because the prevalence of MRSA infection was low and often nil, especially in small hospitals, we restricted our analysis to hospitals with at least 300 patients. We used a multilevel logistic regression model to assess the joint effects of patient-level variables (eg, age, sex, or infection) and hospital-level variables (infection control indicators).

RESULTS: Two hundred two hospitals had at least 300 patients, for a total of 128,631 patients. The overall prevalence of MRSA infection was 0.34% (95% confidence interval [CI], 0.29%-0.39%). The mean value for ICSHA was 7.8 L per 1,000 patient-days (median, 6.1 L per 1,000 patient-days; range, 0-33 L per 1,000 patient-days). The mean value for ICALIN was 92 of a possible 100 points (median, 94.5; range, 67-100). Multilevel analyses showed that ICALIN scores were associated with the prevalence of MRSA infection (odds ratio for a score change of 1 standard deviation, 0.80; 95% CI, 0.69-0.93). We found no association between prevalence of MRSA infection and ICSHA. Other variables significantly associated with the prevalence of MRSA infection were sex, vascular or urinary catheter, previous surgery, and the McCabe score.

CONCLUSIONS: We found a significant association between the prevalence of MRSA infection and ICALIN that suggested that a higher ICALIN score may be predictive of a lower prevalence of MRSA infection.

Keywords

Epidemiology, nosocomial infection control indicators, MRSA, multilevel models
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