O239
1-hour Oral Session
New insights in the epidemiology and treatment of Clostridium difficile

Clostridium difficile infection (CDI) attributable 1-year mortality and nursing home admission in the US Medicare population

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Background: To determine the impact of CDI on 1-year mortality and new nursing home admission in a population-based cohort of U.S. elderly persons using stratified analysis and propensity score matching.

Material/methods: We used Medicare claims data to identify all new-onset CDI in persons aged 66 years and older in 2011. New-onset CDI cases were identified by the ICD-9-CM diagnosis code 008.45 in any of the Inpatient, Outpatient, and physician claims files. The comparison group consisted of individuals in the Medicare 5% random sample without CDI in 2011 or the last quarter of 2010. Logistic regression was used to compute the probability of CDI, including age, gender, race, infections, and a comprehensive group of acute and chronic conditions and health care utilization in the past 12 months in the model. The CDI probability distribution was divided into 20 equal groups (ventiles) based on the probability in the CDI case patients. The relative risk of death and new nursing home admission were calculated within each ventile (incidence of the outcome in CDI case patients/incidence in the controls). Matched-pairs analyses were also performed, matching control patients without CDI to CDI cases by the propensity score. Using the matched pairs attributable CDI mortality and attributable nursing home admission were calculated as the difference in the outcomes between the matched cases and controls. The odds of the two outcomes were calculated using the Mantel-Haenszel test for matched pairs.

Results: There were 180,348 persons newly coded for CDI in 2011 and 1,277,529 controls, with 129,333 propensity score-matched pairs. Overall, 40.9% of CDI cases died within 1 year compared to 6.7% of controls. The relative risk of death was highest for people at lowest risk of CDI (i.e. low CDI propensity score, healthier persons), but remained significantly elevated even for those at greatest risk of CDI (Figure). In matched pairs analysis, 35.7% of CDI cases died versus 24.7% of matched controls, for an attributable 1-year mortality of 11.0% (OR 1.49, 95% confidence interval (CI) 1.44-1.52). Overall, 8.4% of CDI cases newly entered a nursing home compared to 1.1% of controls. The relative risk of new nursing home admission was highest for people at lowest risk of CDI, but remained significantly elevated for those at greatest risk of CDI (Figure). In matched pairs analysis, 7.5% of CDI cases and 4.0% of controls newly entered a nursing home, for an attributable nursing home incidence of 3.5% (OR 1.26, 95% CI: 1.14-1.39).

Conclusions: Among the elderly U.S. population, CDI had an attributable one-year mortality of 11% and attributable one-year new admission to nursing home of 3.5% in 2011. The relative risk for death and nursing home admission were highest for those people at lowest risk of CDI.