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Trend of Hospital Readmissions, Mortality, ER Visits and Observation Room Stays in *Clostridium difficile* Infection Cases in Medicare Advantage Population

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Objective

Clostridium difficile (CD) is an important cause of antibiotic and hospital-associated infection. This preventable infection also plays a major role in hospital readmissions, mostly in the elderly, leading to the CMS implementing rules to penalize hospitals with higher rates, in the Hospital Value Based Purchasing Program[1].The objective of this study is to profile the demographic characteristics of the Medicare Advantage(MA) population with this infection and analyze trends in readmissions, mortality, emergency room(ER) visits and observation room(OR) stays from 2008-2011.

Methods

This retrospective cohort study was conducted using a large nationally representative administrative claims database. Data on patients with a discharge diagnosis of CD infection(CDI) were extracted from 25 large MA plans with complete enrollment and discharge data from 2008-2011. The 30 and 90-day rates of all-cause readmission, death, ER visits, OR stays and death at discharge were calculated per 100 discharges of MA members. Cumulative CDI cases were stratified by age group, gender, discharge status, state and region.

Results

Total of 31877 CDI cases were identified. During the period studied, 65% of CDI patients were female and 35% were males. 36% of CDI cases were discharged to home/self care and 29% were transferred/discharged to a Skilled Nursing Facility. New York had the highest rate of CDI discharges (14.5/100 patients) followed by Florida (12/100 patients); Wyoming had the lowest (0.003/100 patients).The 30-day readmission rates were 26.3%, 25.7%, 25.3% and 25.9% from 2008 to 2011 respectively; 90-day readmission rates were significantly higher at 41.5%, 39.7%, 41.4% and 41.5% over the same period. Death rates at discharge due to CDI ranged from 3.6%(2008) to 4.1%(2009), 3.9%(2010), declining to 2.8%(2011). Death rates within 30 days of index discharge trended up from 2008 to 2010 (8.1%, 8.4%, and 8.8% respectively), dropping to 6.9% in 2011. Death rates within 90 days of index discharge showed significantly higher rates:9.5% to 11.0% from 2008-2010, but dropped significantly to 8.6% in 2011. ER visits within 30 days of index discharge were relatively stable from 2008 to 2010 (27.4%, 28.3% and 27.2%), increasing to 30.0% in 2011. ER visits within 90 days of discharge were much higher, steadily increasing from 41.2% to 46.3% from 2008 to 2011. Observation room stays within 30 days of discharge were 1.3%(2008), 1.6%(2009), and 1.5%(2010), jumping to 2.6%(2011). A similar trend was seen in observation room stays within 90 days, from 2.6% in 2008 to 5.1% in 2011. CDI discharges were most prevalent in members over 65years, with the highest rate in 75-84 year old group.

Conclusions

Clostridium difficile is a major cause of healthcare associated infection, morbidity and mortality. Several studies have found that patients may be at risk of developing CDI up to three months post-discharge owing to the bacteria's characteristics[2]. Since CDI can be potentially prevented with effective institutional infection control strategies, CMS's new policies to link hospital readmission rates to reimbursement has necessitated a closer look into this adverse event[3]. This study of MA population shows a wide range in CDI rates across states. The results also show that all-cause readmission rates at 30 and 90 days post discharge remain high, though marginally decreasing from 2008 to 2011. As readmission rates come down we see an increase in ER visits and OR stays at both 30 and 90 days post-discharge. The mortality rate 90 days after discharge is high compared to same at 30 days, consistent with the known profound late effects of CDI after discharge.[4] This study identifies key patient characteristics and provides evidence that supports continued targeted prevention strategies to reduce the occurrence of CDI.

Keywords

clostridium difficile; readmission; medicare

References

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