

## **The Effect of Oral Antibiotic's on the Development of Community Acquired *Clostridium Difficile* Colitis in Medicare Beneficiaries**

Charles M Psoinos, MD<sup>1</sup>; Courtney E Collins, MD<sup>1</sup>; M Didem Ayturk, MS<sup>1</sup>; Julie M Flahive, MS<sup>1</sup>; Frederick A Anderson Jr, PhD<sup>1</sup>; Heena P Santry, MD, MS, FACS<sup>1</sup>.

<sup>1</sup>University of Massachusetts Medical School, Department of Surgery

*Clostridium difficile* infection (CDI) is increasingly prevalent among community dwelling Americans. Older Americans are particularly vulnerable to community-acquired *Clostridium difficile* (CACD), in part to increasing use of antibiotics. We studied the association between outpatient antibiotics and CACD among Medicare beneficiaries.

Case-control study utilizing a 5% sample of Medicare beneficiaries (2009-2011). Patients with CACD severe enough to warrant hospitalization were identified by a primary diagnosis code for CDI and no exposure to a healthcare environment within 90-days of admission. 1,514 CACD cases were matched to ten controls each on birth year and sex. Potential controls with exposure to healthcare environment were excluded. Outpatient oral antibiotic exposure was classified into three groups: ≤30 days, 31-60 days, or 61-90 days prior to case subject's index admission. Metronidazole and Vancomycin were excluded because they are used to treat CDI. Multivariable models were utilized to determine the independent effect of antibiotics on the development of CACD while controlling for several patient associated characteristics.

Cases of CACD had more outpatient antibiotic exposure in each time period examined: ≤30 days = 40.0% vs 8.4%; 31-60 = 10.7% vs 5.0%; and 61-90 = 5.5% vs 4.4% (all p-values <0.05). Subjects exposed to antibiotics ≤30 days prior to admission had a markedly higher risk of being admitted with CACD compared with those not exposed (OR 8.09, 95% CI 7.13, 9.19). Similarly, subjects taking antibiotics 31-60 days and 61-90 days prior to admission had increased risk of CDI admission (OR 3.65, 95% CI 3.02, 4.41) and (OR 2.06, 95% CI 1.61, 2.63) respectively.

Recent exposure to outpatient oral antibiotics increases the risk of CACD among community dwelling elderly with the risk persisting as long as 90 days after exposure. Inappropriate antibiotic usage must be minimized and older Americans who require outpatient antibiotic treatment may warrant close observation for signs of CDI.

### Contact:

Charles M. Psoinos M.D.

[Charles.psoinos@umassmemorial.org](mailto:Charles.psoinos@umassmemorial.org)

Phone: 978 866 4388

