O445

Abstract (oral session)

Community-associated Clostridium difficile infection among older people in Tayside, Scotland is associated with antibiotic exposure and care home residence: cohort study with nested case-control

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Objective: The importance of community-associated Clostridium difficile infection (CA-CDI) is increasingly recognised. The aim of this study was to estimate the risks of CA-CDI, among the population aged 65y or over, associated with antibiotic exposure and care home residence. Methods: A previous prospective study identified and validated all laboratory confirmed CA-CDI cases in Tayside from 1st Nov 2008 to 31st Oct 2009. We linked these cases to routine population datasets, including primary care prescriptions, to conduct a cohort study and a nested matched case-control study, using survival and multivariate logistic regression analyses, respectively. We studied the effect of exposure to any antibiotics, to "4C" antibiotics (clindamycin, co-amoxiclav, cephalosporins, ciprofloxacin [all fluoroquinolones]), to fluorquinolones, and of care home residence. Results: There were 79,039 eligible Tayside residents on 1st Nov 2008, contributing 76,474 person years to the study. 156 episodes of CA-CDI in 137 persons gave an incidence of 20.3/10,000 patient years. In the cohort study, we found significant increased risk of CA-CDI associated with increasing age and comorbidity, prior hospital admission, care home residence (hazard ratio (HR) 1.96, p=0.014), and baseline antibiotic exposure (HR 1.94, p<0.001), after adjustment. Proton-pump inhibitors had associated increased risk (HR 1.96, p<0.001) but not after adjustment (HR 0.98, p=0.904). In separate adjusted models, 4C antibiotics (HR 2.75, p<0.001), and fluoroquinolones (HR 3.33, p<0.001) each had higher associated risk than any antibiotics. The 62 CA-CDI cases with no hospital admission in the prior three months were 1:10 matched by age and gender to 620 controls. In adjusted logistic regression models, exposure to any antibiotics significantly increased the risk of CDI (odds ratio (OR) 6.04, p<0.001); exposure to 4C antibiotics or fluoroquinolones had even higher associated risks (adjusted OR 11.60 and 13.04, respectively, both p<0.001). Cumulative antibiotic exposure had a cumulative impact on risk of CA-CDI (Table). Repeated case-control analysis using 42 cases with C.difficile confirmed on culture, and their comparators, amplified the association between cumulative antibiotic exposure and CA-CDI risk. The risks associated with care home residence were significant (Table). Conclusions: Among the population at highest risk, antibiotic exposure and care home residence were independently associated with increased risk of CA-CDI.

Table. Multiple logistic regression analyses for risk of CA-CDI from matched case-control studies

Parameter	All cases and controls n=682		Cases with *C.difficile* cultured and controls n=462	
	Odds ratio (95% CI)	p value	Odds ratio (95% CI)	p value
Cumulative antibiotic exposure:				
No antibiotics	1.00	<0.001	1.00	<0.001
1-7 days	2.88 (1.23-6.73)		4.48 (1.45-13.89)	
8-14 days	8.14 (3.34-19.82)		14.49 (1.44-47.25)	
15-28 days	9.61 (3.58-25.81)		13.85 (4.09-46.96)	
29+ days	12.73 (5.18-31.29)		21.90 (6.96-68.86)	
Care home residence (Y *vs.* N)	4.08 (1.73-9.62)	0.001	4.57 (1.61-12.98)	0.004
Total number previous prescriptions* (+5)	1.03 (0.98-1.08)	0.265	1.05 (0.97-1.13)	0.241
Proton pump inhibitor prescription (Y *vs.* N)	1.72 (0.95-3.13)	0.074	1.09 (0.50-2.38)	0.824

*Total prescriptions is a validated measure of comorbidity (Perkins AJ *et al* 2004)