

# Is use of concomitant antibiotic during treatment of *Clostridium difficile* infection a risk factor for recurrence?

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## ABSTRACT

**Background:** *Clostridium difficile* infection (CDI) is associated with a high risk of recurrence. Exposure to antibiotics is incriminated in occurrence and recurrence of infection. The aim of our study is to evaluate the risk of recurrence of CDI in patients treated with one non-CDI antibiotic for concomitant infection compared with patients treated only with CDI antibiotics and also which class of antibiotics significantly increased the risk of recurrences.

**Material/methods:** A retrospective study based on patients files, of all adults non HIV patients admitted for the first episode of CDI in our tertiary care hospital from 1st Oct 2012 till 30th June 2016. Patients were divided in two groups: first group treated only with CDI-antibiotics and the second group with one antibiotic for concomitant infection, associated for at least 3 consecutive days with CDI treatment. Patients with more than one concomitant antibiotic were excluded. We compared the risk for first CDI recurrence for patients with or without another antibiotic treatment and also the risk of recurrences for different classes of antibiotics (penicillins, cephalosporins, carbapenems, aminoglycosides, quinolones, colistin, TB drugs). We tried to identify confounding variable that could influence the results in both groups.

**Results:** There were 655 patients, 288 males, average age 65.9 years (median 67, min 18, max 97), admitted with the first episode of CDI during study period. 51 patients have died (7.78%). From 604 patients who survived, 488 were treated only with antibiotics for CDI and 116 were treated also with another antibiotic than those for CDI. There were 119 first recurrences (24.4%) in patients without concomitant antibiotic and 26 recurrences (22.4%) in group with one concomitant antibiotic ( $p=0.59$ ). There were no differences regarding relative risk (RR) for different classes of antibiotics except for carbapenems  $RR=1.29$  and for TB drugs  $RR=2.46$ . We did not find any differences between groups regarding: age distribution, gender, treatment used for CDI and Charlson comorbidity index. More patients treated with concomitant antibiotics were with fever and hypoalbuminemia.

## OBJECTIVES & METHODS

The aim of our study is to evaluate the risk of the first recurrence of CDI in patients treated with one non-CDI antibiotic for concomitant infection compared with patients treated only with CDI antibiotics.

It is a retrospective study based on patients files, of all adults non HIV admitted for the first episode of CDI in our tertiary care hospital from 1st Oct 2012 till 30th June 2016. Patients were divided in two groups: first group treated only with CDI-antibiotics and the second group with one antibiotic for concomitant infection, associated for at least 3 consecutive days with CDI treatment. Patients with more than one concomitant antibiotic were excluded. We compared the risk of the first CDI recurrence for different classes of antibiotics.

655 patients,		
sex		
	males	288 (44%)
	females	367 (56%)
age		
	min	18
	max	97
	median	67
	average	65.9
outcome		
	deads	51 (7.78%)
	alive	604 (92.22%)
other ABX than for CDI		
	yes	116 (19%)
	no	488 (81%)

## RESULTS

ABX classes	First recurrence		Total	RR	p
	yes	no			
No ABX	119 (24.4%)	369 (75.6%)	488		
TB drugs	3 (60%)	2 (40%)	5	2.46	0.066
Aminoglycoside	3 (21.4%)	11 (78.6%)	14	0.88	0.799
B-Lactams	3 (15.8%)	16 (84.2%)	19	0.65	0.390
Carbapenems	11 (31.4%)	24 (68.6%)	35	1.29	0.352
Cephalosporins	3 (20%)	12 (80%)	15	0.82	0.696
Polymyxins	2 (16.7%)	10 (83.3%)	12	0.68	0.537
Glycopeptides		4 (100%)	4	0.00	0.257
Quinolones	1 (14.3%)	6 (85.7%)	7	0.59	0.536
Sulfonamides		3 (100%)	3	0.00	0.326
Tetracyclines		2 (100%)	2	0.00	0.422
Total	145 (24%)	459 (76%)	604		

Other ABX	First recurrence		Total	p
	Yes	no		
no	119 (24.4%)	369 (75.6%)	488	
yes	26 (22.4%)	90 (77.6%)	116	$p=0.65$ (NS)
Total	145 (24%)	459 (76%)	604	

We did not find any differences between groups regarding: age distribution, gender, treatment used for CDI and Charlson comorbidity index. More patients treated with concomitant antibiotics were with fever and hypoalbuminemia.

## CONCLUSION

- 1) Concomitant antibiotic use for treatment of another infection, during CDI treatment, was not associated with increased risk of recurrence, except for carbapenems and TB drugs.
- 2) There are other factors such as: increased age, fever, hypoalbuminemia that could be correlated with increased risk for CDI recurrences.

## REFERENCES

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