

Risk factors for *Clostridium difficile* Infection (CDI) in Intestinal Transplant Recipients (ITR) during the first year post-transplant.

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Background

C. difficile is the most common cause of healthcare-associated infectious diarrhea. Risk factors for CDI in ITR are not well defined. The aim of our study was to assess specific risk factors for CDI in ITR.

Methods

We matched 1:3 case-control and included 29 ITR who developed CDI (cases) and 87 ITR who did not develop CDI (controls) during the first year post-transplant. Wilcoxon rank-sum and Fisher's exact tests were used to compare variables. Univariate and multivariable conditional logistic regressions analysis were performed to identify risk factors.

Results

Table 1 describes characteristics of the two groups. The median time-to-CDI after transplantation was 163 days (16 – 353 days). Results of univariate analysis are shown in Table 2. The multivariable conditional logistic regression analysis showed that proton pump inhibitors (PPI) administration (OR=0.06; 95% CI: 0.007-0.52; p= 0.01) was associated with lower rates of CDI. Outcomes for cases vs. controls: episodes of rejection 24.14% vs. 20.69% (p= 0.7) .Graft loss 0% vs. 2.3% (p= 0.99) and survival rate 1 year post-transplant 79.3% (59.6-90.1%) vs. 87.2% (78.1- 92.7%) (p= 0.38).

	Controls (n=87)	Cases (n=29)	P value
Gender			
Male	50 (57.47%)	17 (58.62%)	0.91
Age in years (mean)	1.61 (0.5 - 15.27)	1.57 (0.66 - 16.9)	0.42
Type of graft			0.75
SB/P	18 (20.69)	7 (24.14)	
SB/P/L	67 (77.01%)	21 (72.41%)	
SB/P/L/K	2 (2.3%)	1 (3.45%)	
Calcineurin inhibitor			0.54
Tacrolimus	81 (93.1%)	27 (93.1%)	
Cyclosporine	2 (2.3%)	2 (6.9%)	
Tacrolimus – cyclosporine	3 (3.45%)	0 (0%)	
None	1 (1.15%)	0 (0%)	
CMV D/R sero-status			0.69
D+/R-	24 (27.59%)	6 (20.69%)	
D-/R-	39 (44.83%)	13 (44.83%)	
D+/R+ or D-/R+	24 (27.59%)	10 (34.48%)	

	Controls (n=87)	Cases (n=29)	Odds ratio (95% CI)	P value
Induction				
Basiliximab	87 (100%)	29 (100%)		
CMV D/R				
D+/R-	24 (27.59%)	6 (20.69%)	1	0.66
D-/R-	39 (44.83%)	13 (44.83%)	1.36 (0.33 - 5.65)	0.87
D+/R+ or D-/R+	24 (27.59%)	10 (34.48%)	1.77 (0.38 - 8.18)	0.66
Exposure to Antibiotics	34 (39.08%)	13 (44.83%)	1.39 (0.5 - 3.86)	0.52
Number of antibiotics median (range)	0 (0-4)	0 (0-4)	1.13 (0.76 - 1.68)	0.54
Surgical procedure	25 (28.74%)	10 (34.48)	2.0 (0.48 - 8.40)	0.34
Ileostomy	72 (82.76%)	20 (68.97%)	0.38 (0.12 - 1.20)	0.1
Proton pump inhibitors	85 (97.7%)	23 (79.31%)	0.06 (0.007 - 0.52)	0.01
Serum Tacrolimus level median (range)	12 (0 - 26.8)	12.8 (0 - 28.7)	0.995 (0.91 - 1.09)	0.91
Hospital days, median (range)	71 (15-248)	80 (15-247)	0.996 (0.99 - 1.01)	0.5
BMI median (range)	17 (13.5 - 36)	17 (14 - 23)	0.85 (0.67 - 1.08)	0.19

Conclusion

We found PPI administration to be protective for CDI in ITR. Risks factors for CDI in ITR might be different from other populations, based on anatomical differences and medication administered both of which may impact intestinal microbiota.