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P0617 Persistent high levels of microbial translocation are associated with the development of nosocomial bloodstream infections following *Clostridium difficile*

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Background: *Clostridium difficile* infection (CDI) might be complicated by nosocomial bloodstream infections (n-BSI), caused by *Candida spp* and enteric bacteria. Based on the hypothesis that alteration of gut integrity plays a role in the development of n-BSI following CDI, aims of the study were: i) to evaluate markers of microbial translocation (MT) and intestinal damage (ID) in patients with CDI and ii) to analyze whether these markers are specifically modified in subjects developing n-BSI compared with those not developing n-BSI.

Materials/methods: Over 2-years, patients with documented CDI hospitalized at Sapienza University (Rome) were included. For each subject, plasma samples were collected at T0 and T1 (before and after therapy for CDI, respectively) and the following markers were evaluated throughout ELISA assays: LPB (Lipopolysacharide Binding Protein) and EndoCab IgM (MT); Intestinal Fatty Acid Binding Protein (I-FABP, ID). Samples from healthy donors (HD) matched for age and sex were also included. Study population was further divided into BSI+ and BSI- groups, according to the development of n-BSI. Statistical analyses were performed with Prism 7 software.

Results: Overall, 45 subjects were included (mean age 75±13.1y). Clinical success was observed in 40/45 (88.8%) and failure/relapse in 5/45 (11.2%) subjects. 8/45 (17.7%) developed n-BSI (*Candida albicans*, n=2; Gram-negatives, n=4; *Enterococcus faecalis, n=1; C. albicans, K. pneumoniae, E. faecalis, n=1*). Among markers of MT, LBP and EndoCab IgM showed a statistically significant decrease and increase, respectively, between T0 and T1, without reaching values comparable with HD. Although not statistically significant, a decrease of I-FABP levels between T0 and T1 was observed. Nevertheless, the perturbation of intestinal mucosal integrity was still present despite a clinical resolution of infection, as shown by the difference observed between T1 and HD. Persistent high level of MT in BSI+ group was observed at T1 whereas BSI- subjects showed a statistically significant decrease and increase of LBP and EndoCab IgM levels between T0 and T1, respectively (Table1).

Conclusion: The residual high mucosal perturbation as well as the persistence of intestinal cell damage still present at clinical resolution of CDI might represent the pathogenetic trigger in the development of n-BSI following CDI.

	BSI+		BSI-		HD
	T0 median (IQR)	**T1** median (IQR)	**T0** median (IQR)	**T1** median (IQR)	median (IQR)
LBP (ng/mL)	27955 (20908-41140)	24175 (19008-31350)	30960 (2170-41840)	20950* (10040-30150)	14357° (10999-15231)
IgM EndoCab (MU/mL)	42.78 (23.03-137.2)	31.43 (26.09-95.16)	28.86 (11.89-54.96)	34.46* (16.99-72.19)	173.4° (1.184-2.95)
FABP2 (pg/mL)	754.5 (229.3-2459)	1002 (670-1828)	1171 (374-1619)	1002 (476.4-3212)	327.8 (225-482.4)

BSI: bloodstream infection. HD: healthy donors. IQR: interquartile range. LPB: Lipopolysacharide Binding Protein; I-FABP: Intestinal Fatty Acid Binding Protein. *: statistically significant, refers to the differences between To and T1; °: statistically significant, refers to the differences between patients and HD.