



CHANGES IN GUT MICROBIOME COMPOSITION IN PATIENTS UNDERGOING HSCT COLONIZED BY ESBL BACTERIA AND TREATED WITH CARBAPENEMS



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Background

✦ Prolonged broad spectrum antibiotic use promotes loss of microbiome diversity and increases the risk of intestinal colonization by multi-drug-resistant (MDR) bacteria, including extended spectrum beta lactamase producing Enterobacteriaceae (ESBL).

✦ **Aims of this study were** to prospectively evaluate the overall changes in gut microbiome composition after hematopoietic stem cell transplantation (HSCT) and the differences in patients colonized by ESBL bacteria and treated with carbapenems.

Methods

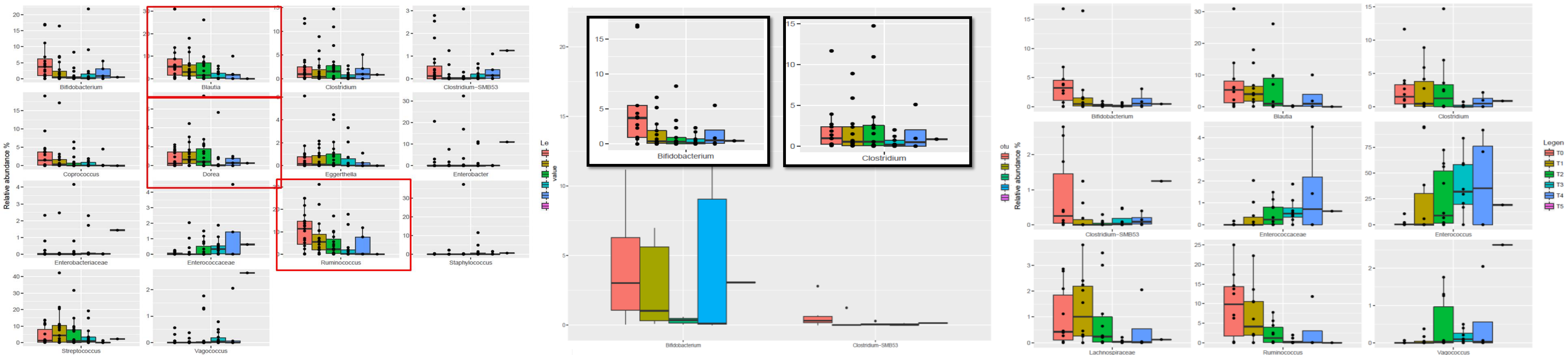
✦ Faecal samples were collected from admission (T0) through day +28 (T5), every seven days. Fecal microbiota was assessed by 16S amplicon-based sequencing.

✦ 100 faecal samples of 20 HSCT patients were analyzed.

Results

✦ 30% (no.6) of patients colonized by ESBL bacteria had a significant reduction of *Clostridium spp* and *Bifidobacterium* species.

✦ Carbapenems were used as second line treatment of febrile neutropenia in 50% (no.9) of cases, usually associated with aminoglycosides. In patients treated with carbapenems, a strong decline of *Blautia* and *Ruminococcus* at T3 was observed.



Discussion

✦ Our findings suggest a correlation between carbapenem regimens and increase of pro-inflammatory bacterial strains in the gut, offering potential modifiable targets to reduce risk of colonization by MDR bacteria and to promote a carbapenem-sparing approach in the HSCT setting.