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O1047 The characteristics of Gram-negative bacteraemia during febrile neutropenia among allogeneic haematopoietic stem cell transplant recipients on levofloxacin prophylaxis

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Background: Levofloxacin (LVFX) prophylaxis is the strategy to prevent bacterial infection in patients undergoing allogeneic hematopoietic stem cell transplantation (allo-HSCT). However, the characteristics of gram-negative bacteremia (GNB), including extended-spectrum β-lactamase (ESBL) producing pathogens, in this setting are uncertain. This study focuses on GNB in an allo-HSCT setting.

Materials/methods: Between January 2011 and June 2016, retrospective analysis focusing on GNB at the first episode of febrile neutropenia (FN) among allo-HSCT recipients (age, ≥20 years) who received 500 mg/day of oral prophylactic LVFX was conducted. We discontinued LVFX prophylaxis at the first episode of FN and switched to an anti-pseudomonal β-lactam (APBL) - based regimen. Causative strains were identified using VITEK2 and WalkAway 96 SI. Antibiotic susceptibility was determined by CLSI M100 ED28.

Results: In total, 378 allo-HSCT recipients had FN, and all of them were administered any of the APBLs instead of LVFX prophylaxis. Cefepime (CFPM) was the most frequently used APBL (89%). Bacteremia at the first FN episode occurred in 156 of the 378 recipients. 31 GNBs were documented, and the causative organisms identified were 22 *E. coli* (including 9 ESBLs), 3 *Pseudomonas aeruginosa*, 2 *Klebsiella pneumoniae*, and 4 others. The crude 30-day mortality rate did not differ significantly among those with GPB (8.1%), those with GNB (6.5%), and those without bacteremia (5.9%) (*P*=0.74). Antibiotic susceptibility indicated that empirical therapy was inadequate in 9 of 27 GNB cases (excluding 4 pathogens which do not have the break point). The ineffective treatment consisted of all CFPM and all causative organisms were ESBL producing *E. coli* (ESBL-EC). In all cases, effective treatment (e.g. Amikacin, Meropenem) was initiated immediately after confirming the response to CFPM (median 1.0 day after onset of FN); eventually, all cases were treated with Meropenem. All patients had a low Pitt bacteremia score (≤ 2). The 30-day mortality of the 9 patients did not significantly differ from that of the adequate therapy group (1/9 vs. 1/17, *P*=0.61).

Conclusions: GNB was not a significant cause of death in this setting. Furthermore, empirical CFPM for less severe ESBL-EC bacteremia cases may not be associated with the mortality.