PB2275 IMPACT OF EARLY FEVER ONSET AND NOVEL ANTIBIOTICS PROLONGED FEBRILE NEUTROPENIA OUTCOME FOLLOWING AUTOLOGOUS STEM CELL TRANSPLANTATION. SINGLE CENTER 10-YEAR RETROSPECTIVE STUDY

Topic: 30. Infections in hematology (incl. supportive care/therapy)

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Background: Even though early transplant-related mortality following autologous stem cell transplantation (ASCT) is extremely low, infections represent one of the leading causes of death in the first 30 days. Prolonged period of neutropenia and engraftment with granulocyte colony stimulating growth factors can also cause fever even in the absence of infectious episode.

Aims: The aim of our study was to identify predictive factors of fever outcome in patients that had febrile neutropenia following ASCT that lasted more than 72 hours, had a documented infection and/or was unresponsive to empirical antibiotics.

Methods: We retrospectively evaluated data records from 482 patients that underwent ASCT from January 2011 until October 2021 in our Institute. Two hundred twenty-seven patients (47%) had an episode of febrile neutropenia during hospitalization, with 88 patients having fever for more than 72 hours or documented infection site, that were analyzed as the study cohort.

Results: Median age of the study population was 56 years (range 19-70), with 64% being male. Patients were mainly affected by multiple myeloma (40%) and lymphoma. Median treatment line prior to ASCT was two (range 1-5) with 42 patients being in first line, while around 40% was treated with rituximab previously. Twenty-six patients (30%) had previous infectious episode, while thirty-eight (43%) had very good partial response or better to baseline disease prior to ASCT.

Median day of fever onset following ASCT was five (range 1-12), with median fever duration of four days (range 1-16). Seven patients had positive rectal swab for carbapenem-resistant enterobacteriaceae (CRE) at hospital admission. Half of the population had grade 3 or higher of mucositis, nearly two-third of patients had more than 39°C of body temperature at least once, and median peak number of daily fever spikes was three (range 1-5). In thirty-four episodes of febrile neutropenia at least one blood culture resulted positive, respectively 28 and 6 for gram negative and gram positive bacteria. In sixteen patients with positive blood culture the same agent was isolated previously, while three patients had CRE in the blood culture.

Median peak C-reactive protein (CRP) value was 20.1 mg/dL, and CRP value greater than 10 mg/dL was present in a median of 4.5 days. CT scan evidenced either signs of pulmonary consolidation, ileopyhitis or sinusitis in 35% of the cohort. Novel antibiotic agents, namely ceftolozane/tazobactam and ceftazidime/avibactam, were available in half of the population during fever episode and it was used in twenty-one patients (24%). Eleven patients suffered from septic shock (13%), with seven patients (8%) passing away.

Wilcoxon Rank-Sum test demonstrated association between overall survival and both prolonged fever duration (p=0.0002) [Figure 1A] and number of days with CRP greater than 10 mg/dL (p=0.004). Fever duration was impacted
by ceftolozane/tazobactam and ceftazidime/avibactam treatment ($p=0.04$), and documented infection site on CT scan ($p=0.009$). Finally, prolonged fever duration was associated early fever onset following ASCT [Figure 1B] and number of days with CRP greater than 10 mg/dL using Spearman correlation analysis.

**Summary/Conclusion:** Although fever onset following ASCT was present in half of the patients in our population, in less than 40% duration was more than 72 hours. Clinical and laboratory characteristics, such as early fever onset following ASCT, can be of aid in identifying potentially life-threatening infections. The availability of novel antibiotics could improve the outcome in this setting of patients.