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Abstract (oral session)
Prospective validation of an algorithm for initiation of antifungal therapy in neutropenic patients based on the D-index

M. Garnica, A. Sinhorelo, L. Madeira, M. Nucci* (Rio de Janeiro, BR)

Objectives: The D-index was described as a simple tool to measure both the intensity and duration of neutropenia, and exhibited a high negative predictive value for the diagnosis of invasive fungal diseases (IFD) in patients with acute myeloid leukaemia (AML). We tested the D-index as a risk stratification parameter to guide decision of start antifungal therapy in association with serial serum galactomannan (GMI) and chest and sinuses CT in high-risk neutropenic patients. Methods: Prospective cohort of patients with acute leukaemia or myelodysplasia undergoing induction chemotherapy. Patients were monitored with 3x/week serum GMI and had the D-index calculated, based on neutrophil counts (3x/week). Chest and sinus CT was obtained in case of persistent (after 4 days of antibiotics) or recurrent fever, clinical manifestations of IFD (sinuses, lungs, skin nodules) or positive GMI. Patients were stratified in 3 risk categories on the basis of the D-index. Results: Among 27 patients included so far (median age 37 years, range 18- 67), most had AML (52%) or acute lymphocytic leukaemia (37%). The median duration of neutropenia was 14 days (0 – 40), and the median D-index was 4763 (271 – 11980). Overall, 12, 7 and 8 patients were classified as low, intermediate and high risk, respectively, based on the cumulative D-index value. IFD occurred in 8 patients, with an incidence of zero in low risk, 29% in intermediate risk and 75% in high risk patients (p=0.002). Antifungal therapy was given to 12 patients (44%), at a median of 10 days from the start of febrile neutropenia. If standard empirical antifungal therapy was applied, 15 patients (55%) would have received antifungal therapy (20% reduction). In addition, two patients with IFD would not have received antifungal therapy on the basis of persistence or recurrence of fever. All patients survived the episode of febrile neutropenia. Conclusion: The D-index (a simple and inexpensive tool) defined 3 groups at risk for IFD among patients with acute leukaemia. The algorithm was able to reduce and delay the use of antifungal agents without compromising the outcome.