O1046 Infectious complications in patients with multiple myeloma at various chemotherapy regimens

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Background: The aim of the study was to determine the rate and risk factors of infections in patients with multiple myeloma (MM) at various chemotherapy regimens.

Materials/methods: Patients with MM were included in the study (Jan 2013-Jun 2018). The rate of infections was evaluated during chemotherapy regimens containing bortezomib-based chemotherapy cycles (CC) used as first-line therapy, lenalidomide-based and bendamustine-based CC used as second- or next-line therapy and salvage therapy.

Results: A total of 174 patients (median age 61 years) with MM received 1362 CC (median 7 CC per patient), of them were 895 bortezomib-based CC in 174 patients, 306 lenalidomide-based CC in 68 patients, 63 bendamustine-based CC in 32 patients, 98 salvage CC in 34 patients. Follow-up period was 1.9-49.4 months (median 5.6 months). Bortezomib-based CC were connected (p<0.05) with higher cumulative dose of corticosteroids (>1600 mg prednisolone-equivalent over 1 month) and hyperglycemia (blood sugar≥200 mg/dL), whereas salvage therapy was associated (p<0.05) with higher rate of blood transfusion, presence of central venous catheters (CVC). Neutropenia was in 50 (3.7%) of CC. Infections occurred in 344 (25.3%) of CC, the majority of them was pneumonia (54.9%), followed by urinary tract infections (24.7%) and herpes viral infections (23%). Infections prevailed on salvage therapy compared to other CC (48% vs 20.3-27%, p<0.01; figure). Bortezomib-based CC were associated with herpes viral infections (29.8% vs 8.1-17.6%, p<0.05), of them 59.5% Herpes simplex and 30.4% H.zoster. Bloodstream infection were in 4.9% CC. The rate of invasive aspergillosis was 1.1%, Pneumocystis jirovecii pneumonia 3.4%. Risk factors associated with infections during all CC were neutropenia, presence of CVC, blood transfusion and disease progression. A higher dose of corticosteroids, hyperglycemia, polyclonal IgM<0.48 g/L were associated with infections during bortezomib-based CC. Fatal outcome occurred in 25 (14.4%) of patients, of them 21 (84%) had refractory MM. Infection-related mortality was 2.3%.

Conclusions: Infections occurred more often during salvage therapy compared to bortezomib-, lenalidomide- and bendamustine-based CC. The prevalent type of infections was pneumonia. Bortezomib-based CC were associated with herpes viral infections. Risk factors for the infections during all CC were neutropenia, presence of CVC, blood transfusion and disease progression.
Figure. Incidence of infections in patients with multiple myeloma at various chemotherapy regimens.