Infection Risk in Patients with Multiple Myeloma during the Era of Monoclonal Antibody Therapy

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CONTEXT

With the advent of new monoclonal antibody therapies for Multiple Myeloma (MM), the impact of their mechanisms of immunosuppression on the risk and types of infections developed by patients who receive them are not well understood. While initial randomized control trial data suggests increased rates of Varicella Zoster Virus (elotuzumab, daratumumab) and lymphopenia (elotuzumab), more data is necessary to delineate whether practice changes in routine prophylaxis are indicated.

OBJECTIVE

To identify the incidence and type of infection in patients with MM receiving elotuzumab or daratumumab-based regimens, describe their characteristics, and compare these data points to patients with MM who did not receive regimen to help inform decision-making regarding appropriate infection prophylaxis.

METHODS

This was a retrospective chart review including patients treated from January 1, 2002 – April 30, 2018 at an academic referral center. Patients with MM who were 18 years or older and who received therapy incorporating daratumumab, elotuzumab, or both were eligible for inclusion in the “intervention” arm. The “control” group was comprised of patients with MM in the same age group who received regimens that did not include monoclonal antibody therapy.

DATADIRECT database query using these parameters was performed and resulted in the identification of 58 patients for the intervention group and 56 for the control group, of whom 51 and 44 met criteria for inclusion, respectively.

Table 1. Baseline characteristics

Interventions were not standardized and patients received a range of combination therapy in the relapsed/refractory setting. The primary outcome measures were formulated prior to data collection: presence/type of infection, time to infection from initiation of monoclonal antibody based therapy in the intervention group versus initiation of treatment in the control group. Secondary outcome measures were infection-associated mortality and use of relevant prophylaxis.

RESULTS

Baseline characteristics are summarized in Table 1. Of the 51 patients in the intervention group, 15 received elotuzumab and daratumumab consecutively. Of those who received elotuzumab, 16.7% versus 16.3% of those who received daratumumab experienced infection.

Overall, 21.6% of patients developed infections including 5 with bacterial pneumonia, one case of JC virus (only episode associated with mortality) and remaining with neutropenic fever, diverticulitis, or diarrhea. All patients received anti-viral prophylaxis. The mean time to infection was 3.5 ± 5.5 months.

CONCLUSIONS

The frequency of infections was relatively low in the intervention group with the majority being bacterial pneumonias (only 1 of 5 in the setting of neutropenia), whereas infections occurred in over half of control patients (although several in the post-transplant setting). Further studies with increased sample size are needed to provide definitive answers regarding the selection of prophylactic medications with these monoclonal antibody therapies.

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