HEMATOLOGY, TRANSFUSION AND CELL THERAPY

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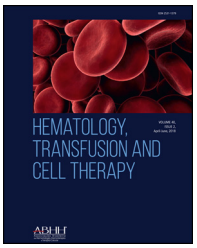

Scientific Comment

Multiple myeloma and infection: this association is still close☆

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ARTICLE INFO

Article history:
Received 18 September 2019
Accepted 18 September 2019
Available online 8 October 2019

The association of multiple myeloma and infection is very known and contributes to severe morbidity and a large number of deaths. Patients living with Multiple Myeloma had thirteen times more pneumonia than the overall population, and regarding severe infections, such as sepsis, the rate is about 30 times.[1]

These patients have several factors that increase the risk for infectious diseases, such as reduced performance status, advanced age, decrease in renal function, impair in mobilization, intense damage in humoral immunity, and others. Recently several new options for multiple myeloma treatment have been evaluable intending to prolong survival. In addition to more prolonged survival, immunosuppression duration has also been extended, and so the risk for infectious diseases.[1,2] Data comparing patients that received the diagnosis of myeloma in different decades showed that the cumulative incidence of infection has been increasing in recent decades. On the other hand, the mortality rate due to infection has been stable, probably due to a better performance of diagnostic and treatment armamentarium in the infection diseases field.

In this issue of Hematology, Transfusion and Cell Therapy, a study from Pakistan described more than 200 episodes of infection in myeloma patients, corresponding to 37% of incidence. Events were more frequently in pulmonary and genitourinary systems, and by bacterial and viral etiology. In a large proportion of events, the agent was not isolated.[3]

The difficulty in diagnosis is a significant concern for all immunocompromised patients. The lack of etiological diagnosis contributes to antimicrobial overuse, adverse events, and worse overall response. Besides, if the etiology is documented, polices to reduce the risk of relapse or re-infection can be implemented in a more personalized situation.

Infections events occur during any treatment phase in myeloma patients, but in firsts months after diagnosis, the incidence is worst. Bacterial and viral infections are the leading etiology, and a large number of severe episodes (Grade 3 or 4) can occur. In a recent study that analyzed infection in

☆ See paper by Zahid et al. on pages 292-297. https://doi.org/10.1016/j.htct.2019.02.005

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https://doi.org/10.1016/j.htct.2019.09.002

patients not eligible for transplant treated with Rd or MPT in a large clinical trial, more than 20% of patients had at least one severe infection in 18 months of follow-up. Half of these events occurred within the first three months of therapy, and 30% in the first month of treatment.[4] A predictive score was proposed taking as variables ECOG performance status, and levels of serum B2microglubulin, hemoglobulin, and LDH. Factor also remarkable as a prognostic factor in myeloma.

To overcome the infection risk, the consensus from several Working Groups recommends special attention in firsts months of treatment. Vaccination against Influenza, *Streptococcus pneumonia*, and *Haemophilus influenzae* is strongly recommended. Antibacterial prophylaxis is recommended for patients in lenalidomide or pomalidomide therapy, and for unfit patients with comorbidities. There is no consistent data published until now showing benefits in universal antibacterial prophylaxis. As the emergence of resistance occurs mainly due to antimicrobial overuse, prophylaxis indication probably benefits high-risk patients and for a short period. Antiviral prophylaxis reduces the risk of zoster reactivation and is recommended during proteasome inhibitors therapy.[5,6]

All efforts have to be made to assure that myeloma patients will be treated promptly with antibiotics in case of fever or suspected infections. Clinicians must be able to diagnosis and to manage the event with adequate diagnostic tools and antimicrobials to minimize complications and deaths, and so reaches the improvement in myeloma outcomes.

Conflicts of interest

The authors declare no conflicts of interest.

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