

Isatuximab: A Hopeful Drug for Multiple Myeloma

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Plasma B cells are white blood cells produced by the bone marrow to fight infection. Antibodies produced by these cells represent an integral part of the immune response [1].

Multiple myeloma (MM) is the second most common hematological malignancy that occurs when abnormal plasma cells are produced. These abnormal cells tend to invade the bone marrow producing abnormal immunoglobulin called M protein. Men are slightly more affected than women and this debilitating disease tends to occur by the age of 65 years. Patients with MM may present with bone pain, pathological fracture, anemia, hypercalcemia, renal impairment and recurrent infection [2].

Although it is considered an incurable malignancy, efforts have been done to improve the clinical outcome of MM. Accordingly, combinatorial approaches of different drugs have been recommended by the National Comprehensive Cancer Network (NCCN) [3].

These drugs include corticosteroids (dexamethasone), chemotherapeutics (melphalan, cyclophosphamide), proteasome inhibitors (bortezomib, carfilzomib, ixazomib), immunomodulatory agents (thalidomide, lenalidomide, pomalidomide), histone deacetylase inhibitors (panobinostat) and monoclonal antibodies (daratumumab). Some of these agents are prescribed through restricted programs for continuous monitoring of adverse effects [3]. Unfortunately, although these agents are welcomed in the clinical field, many patients are still refractory to treatment [4].

Interestingly, on March 2020, the U.S. food and drug administration (FDA) approved the monoclonal antibody isatuximab-irfc (Sarclisa) for management of multiple myeloma. The drug was manufactured by Sanofi-Aventis U.S. and approved in combination with pomalidomide and dexamethasone for management of refractory cases of MM who have received ≥ 2 prior therapies including lenalidomide and a proteasome inhibitor [5].

While pomalidomide exerts anti-angiogenic, anti-inflammatory and immunomodulatory effects, isatuximab targets a unique epitope on the human CD38 glycoprotein that is highly expressed on the surface of multiple myeloma cells. Isatuximab promotes killing of these malignant cells through different mechanisms of action such as Antibody-dependent cell mediated cytotoxicity (ADCC), Antibody-dependent cellular phagocytosis (ADCP), Complement-dependent cytotoxicity (CDC) and direct apoptosis [6]. Infusion site reactions, neutropenia and upper respiratory tract infection are reported with isatuximab use [5].

Although the results of phase III ICARIA Study concluded that triple regimen with isatuximab has significantly improved the progression-free survival of MM compared to pomalidomide and dexamethasone alone, ongoing clinical evaluation of isatuximab with different drugs is still present to provide an integrated protocol for management of multiple myeloma [5].

Eventually, the FDA approval of isatuximab brings hope to patients with refractory multiple myeloma who are seeking a better life.

Bibliography

1. Lindquist Randall., *et al.* "In the right place, at the right time: Spatiotemporal conditions determining plasma cell survival and function". *Frontiers in Immunology* 10 (2019): 788.
2. Hagiwara May., *et al.* "Burden of disease progression in patients with multiple myeloma in the US". *Leukemia and Lymphoma* 61.1 (2020): 47-55.
3. Kumar Shaji K., *et al.* "NCCN guidelines insights: multiple myeloma, version 3.2018". *Journal of the National Comprehensive Cancer Network* 16.1 (2018): 11-20.
4. Durer Ceren., *et al.* "Treatment of relapsed multiple myeloma: Evidence-based recommendations". *Blood Reviews* 39 (2020): 100616.
5. Dhillon Sohita. "Isatuximab: First Approval". *Drugs* 80.9 (2020): 905-912.
6. Moreno Laura., *et al.* "The mechanism of action of the anti-CD38 monoclonal antibody isatuximab in multiple myeloma". *Clinical Cancer Research* 25.10 (2019): 3176-3187.

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