EDITORIAL

Immuono-oncology: A changing paradigm in cancer therapy

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Immune checkpoint inhibitors are undeniably among the most important advances made in the field of cancer therapy in the past decade\(^1\). By releasing the immune system brakes that limit the activation of T-cells, they boost self-response against foreign antigens including cancer cells\(^2\). In the past three years, a number of checkpoint inhibitors have been approved for use in routine clinical settings. Ipilimumab was among the first to be approved for the management of melanoma in both adjuvant and metastatic settings\(^3\-5\).

Meanwhile, nivolumab and pembrolizumab are two programmed cell death protein 1 (PD-1)-targeted monoclonal antibodies that have been approved for the treatment of advanced melanoma and advanced non-small cell lung cancer (NSCLC)\(^6\-11\). Moreover, nivolumab has also been approved for previously treated metastatic renal cell carcinoma and previously treated head and neck squamous cell carcinoma\(^12\-13\). In addition to the aforementioned compounds, atezolizumab is a novel anti programmed death-ligand 1 (PD-L1) monoclonal antibody that has shown impressive activity for advanced urothelial carcinoma and previously treated NSCLC\(^13\-14\). A number of other checkpoint inhibitors including avelumab, durvalumab, and tremelimumab are currently undergoing evaluation at different preclinical and clinical phases\(^15\).

However, the use of these agents presents a number of challenges to the treating physicians, most notably being the response evaluation criteria, the role of biomarkers, and the detection and management of peculiar toxicities associated with these agents. Given the peculiar response patterns observed with these agents, specific immune-related response evaluation criteria have been suggested and they are now widely used in different clinical settings\(^16\). Moreover, a number of biomarkers have been proposed as response predictors of these agents, particularly the PD-L1 status in association with anti-PD-L1 treatment\(^17\-18\). Nonetheless, the use of this biomarker has been criticized for the lack of consistency and standardization, and it is expected to take a while before a general consensus can be established on this particular point\(^19\).

The issue of toxicity is another important point of consideration associated with the use of immune checkpoint inhibitors. Contrary to traditional cytotoxic chemotherapy, check point inhibition is linked to a wide spectrum of immune-related toxicities including those of endocrine, cutaneous, pulmonary, hepatic, ocular, and neurological, which necessitate proper diagnosis and treatment\(^20\-27\). In conclusion, the advancement of immuno-oncology is transforming the field of oncology worldwide. It remains to be seen whether developing countries are capable of coping with the escalating prices of these newer immuno-therapeutics and more importantly, it is crucial to identify measures that can be taken by the global oncology community to deliver these life-saving drugs to all patients in need, irrespective of their financial circumstances.

Conflict of interest

The author declares no potential conflict of interest with respect to the research, authorship, and/or publication of this article.
References


