LETTER TO THE EDITOR

Toripalimab: A new age in fighting Nasopharyngeal Carcinoma

Taha Ahmad Siddiqui, Aamrah Wakil, Maham Imran

Madam, Nasopharyngeal carcinomas (NPCs) lie amongst a group of malignant tumours whose incidence has steadily increased over the past 30 years.[1] These have a significantly higher incidence rate in Asian populations, which account for over 70% of new cases worldwide.[2] The leading risk factors associated with NPCs are tobacco and alcohol consumption, followed by HPV infections. Usually diagnosed at advanced stages, a combination of chemo and radiotherapy is the standard treatment. However, they have one of the lowest survival rates compared to other cancers.[1]

Programmed cell death protein 1(PD - 1) is a receptor that is expressed on T cells, B cells, macrophages, dendritic cells and natural killer cells. Binding of PD-1 with its ligands, namely PD-L1 and PD-L2, transmits an inhibitory signal, which decreases the proliferation and production of cytokines by T cells, thereby inhibiting immune system stimulation. Toripalimab is a monoclonal antibody that blocks interactions between the PD - 1 and PD-L1 or PD-L2.[3]

Toripalimab was approved by the FDA on 10/27/2023 with the following indications; first line treatment of locally advanced, recurrent or metastatic NPC(RM-NPC) in combination with standard chemotherapy using cisplatin plus gemcitabine, and as a lone agent in patients with RM-NPC showing disease progression despite being on or after platinum containing chemotherapy.[3] The approval was based off of two clinical trials; POLARIS-02 and JUPITER-02,[4,5] which suggested that toripalimab combined with standard chemotherapy provided statistically as well as clinically significant, progression free survival and overall survival benefits compared to standard chemotherapy alone.

The aforementioned clinical trials showed a manageable safety profile with the overall rate of grade 3 or greater side effects being similar in the two groups- toripalimab plus standard chemotherapy versus standard chemotherapy alone and that the most common side effects were mainly due to standard chemotherapy itself. The main immune related adverse effects reported were hypothyroidism, hyperthyroidism, abnormal liver function, interstitial lung disease and dermatomyositis.[4,5]

In recent years immunotherapy has emerged as a highly effective avenue when used in combination with targeted therapies. This combination enhances the immune cells' attack capabilities and thereby enhances the efficacy of the treatment.[3] Toripalimab is the first FDA- approved immune checkpoint mediator for the treatment of RM-NPC and the promising results from the clinical trials alongside the tractable safety profile support the use of Toripalimab in combination with gemcitabine-cisplatin chemotherapy as the new standard of care for this population.

DOI: https://doi.org/10.47391/JPMA.20757

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

References

1. Isis, Araujo M, Bouassaly J, Farshadi F, Atique M, Esfahani K, et al. Therapeutic Advances and Challenges for the Management of HPV-Associated Oropharyngeal Cancer. Int J Mol Sci. 2024; 25:4009–9. doi: 10.3390/ijms25074009.
2. Strohl WR. Structure and function of therapeutic antibodies approved by the US FDA in 2023. Antib Ther. 2024; 7:132-56. .
3. Zheng L, Wang W, Sun Q. Targeted drug approvals in 2023: breakthroughs by the FDA and NMPA. Signal Transduct Target Ther. 2024; 9:46.doi: 10.1038/s41392-024-01770-y.
4. Wang FH, Wei XL, Feng J, Li Q, Xu N, Hu XC, et al. Efficacy, Safety, and Correlative Biomarkers of Toripalimab in Previously Treated Recurrent or Metastatic Nasopharyngeal Carcinoma: A Phase II Clinical Trial (POLARIS-02). J Clin Oncol.2021; 39(7):704–12. doi: 10.1200/JCO.20.02712.
5. Mai H, Chen Q, Chen D, Hu C, Yang K, Wen J, et al. Toripalimab Plus Chemotherapy for Recurrent or Metastatic Nasopharyngeal Carcinoma. JAMA. 2023; 330:1961–1. doi: 10.1001/jama.2023.20181.

Department of Medicine, Sindh Medical College, Jinnah Sindh Medical University, Karachi, Pakistan.

Correspondence: Aamrah Wakil. **Email:** aamrah.wakil@gmail.com

ORCID ID: 0000-0002-3743-4510

Submission complete: 05-07-2024 **First Revision received:** 13-09-2024

Acceptance: 25-09-2024 **Last Revision received:** 13-09-2024

AUTHORS' CONTRIBUTIONS:

TAS, AW: Concept, design, data analysis, interpretation, drafting, revision, final approval and agreement to be accountable for all aspects of the work.

MI: Drafting, revision, final approval and agreement to be accountable for all aspects of the work.