489 STATIN DRUGS AUGMENT TUMOR RESPONSE TO ANTI-PD-1 IMMUNE CHECK POINT BLOCKADE IN HEAD AND NECK CANCER PATIENTS

[1]Tyler J Kristoff*, [1]Sean Evans, [2]Pranay Nayi, [3]Marin Abousaud, [1,3]Conor Steuer, [1,3]Dong Shin, [1,3]Nabil F Saba, [3]Nicole C Schmitt. *[1]Emory University School of Medicine, Atlanta, GA, USA; [2]Rollins School of Public Health at Emory University, Atlanta, GA, USA; [3]Winship Cancer Institute of Emory University, Atlanta, GA, USA*

Background Anti-programmed cell death protein-1 (PD-1) immune checkpoint blockade (ICB) has become a common first line treatment for head and neck squamous cell carcinoma (HNSCC). Despite its frequent use, there is a need for further improvement in patient outcomes. It has been previously shown that HMG-CoA Reductase inhibitors (statins) have increased response rates in other solid tumors when combined with anti-PD-1 ICB.[1] In our preclinical studies, lovastatin or simvastatin in combination with anti-PD-1 ICB resulted in tumor growth delay and increased survival in mouse models of HNSCC, in part due to improved activation of T cells in the draining lymph node.[2] In the current study, we evaluated the association between patient statin usage and initial tumor response to anti-PD-1 ICB.

Methods This is a retrospective, observational study of patients with recurrent/metastatic HNSCC receiving anti-PD-1 ICB with pembrolizumab or nivolumab at a single comprehensive cancer center. We excluded patients who received less than three cycles of anti-PD-1 ICB, had insufficient data recorded, or also received cabozantinib in a clinical trial. Clinical information including statin use at baseline, Body Mass Index, Combined Positive Score, p16 status, and concurrent administration of chemotherapy, radiation, and other agents was recorded. Our primary outcome measure was initial objective response rate (ORR), defined as complete or partial response within the first six months. Patients were categorized as having clinical benefit in the event of a response or stable disease for six months (versus progressive disease). Tumor response was determined by reviewing routine surveillance imaging. Statistical analysis was done with a chi-squared test.

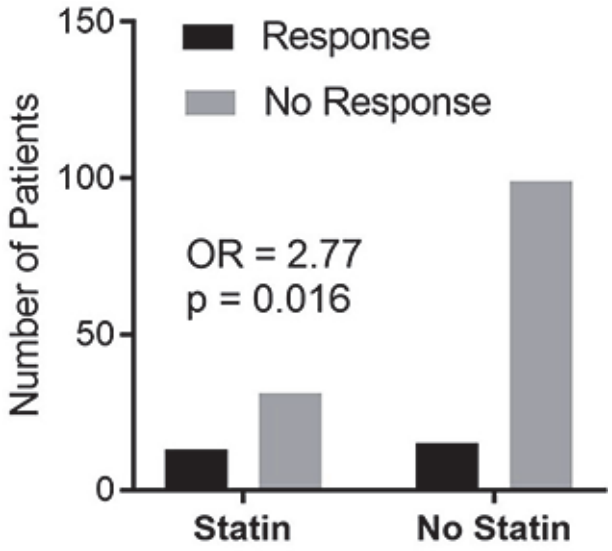
Results Our initial query resulted in 284 patients on anti-PD-1 ICB for HNSCC, of which 158 met our inclusion criteria. A total of 44 (27.8%) patients were on statin therapy at baseline. Patients taking a statin saw an ORR of 29.5% vs 13.2% in those not taking a statin at baseline (OR 2.77, p=0.016) (figure 1). A similar trend was observed in clinical benefit but was not statistically significant, with statin users showing a clinical benefit rate of 50% vs 40% in non-users (OR 1.48, p=0.27)(figure 2).

Conclusions Patients on a combination of anti-PD-1 ICB and a statin at baseline showed an improved response compared to those on anti-PD-1 ICB alone. Multivariate analyses are needed to determine whether statins are an independent predictor of response to anti-PD-1 ICB in recurrent/metastatic HNSCC.

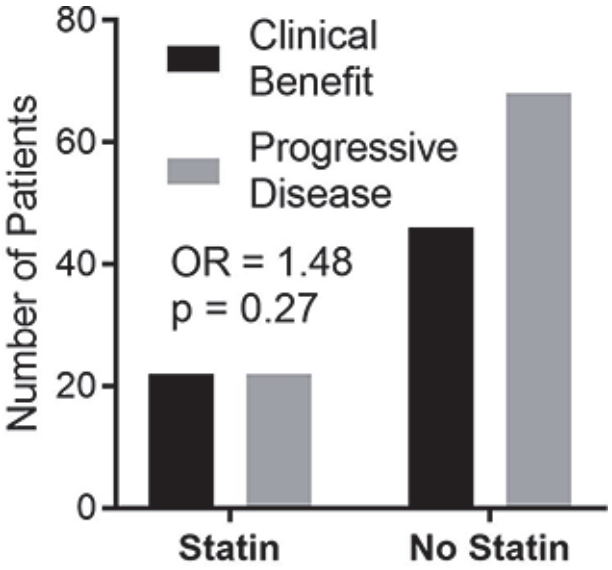
REFERENCES

1. Cortellini A, Tucci M, Adamo V, Stucci LS, Russo A, Tanda ET, *et al*. Integrated analysis of concomitant medications and oncological outcomes from PD-1/PD-L1 checkpoint inhibitors in clinical practice. *J Immunother Cancer*. 2020;**8**.
2. Kansal V, Burnham AJ, Kinney BLC, Saba N, Paulos C, Lesinski GB, *et al*. Statin drugs enhance responses to immune checkpoint blockade in head and neck cancer models. *J Immunother Cancer*. 2023;**11**.

Ethics Approval Ethics approval was provided by the Emory University Institutional Review Board (Study IRB ID: STUDY00004222). A complete waiver of HIPAA authorization and informed consent has been granted by the Emory University IRB.



Abstract 489 Figure 1



Abstract 489 Figure 2

http://dx.doi.org/10.1136/jitc-2023-SITC2023.0489