Origin of otolaryngology referrals for head and neck cancer in a safety net hospital: Impact on presentation and management

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ABSTRACT

Objectives: To assess the origin of initial referrals for otolaryngology evaluation, and the referral site's impact on initial staging and time intervals between initial evaluation, diagnosis, and treatment in head and neck squamous cell carcinoma (HNSCC) patients.

Study Design: Retrospective chart review of patients with HNSCC diagnosed at Grady Memorial Hospital between 2011-2016.

Methods: Data was analyzed by demographic information, primary site/stage, and referral service. Time intervals between referral placement, otolaryngology evaluation, biopsy, treatment initiation, and treatment completion were also quantified.

Results: A total of 100 patients met inclusion criteria. 83% of patients were male with an average age of 59.6 years. The most common referral origin was the Emergency Department (ED) (43%), followed by primary care physicians (PCP) (20%, p<0.01), and the inpatient internal medicine (IM) service (12%). 83% of patients from the ED or IM services had Stage IV cancer, compared to 59% of patients from a PCP or outpatient offices (p<0.01). 18 days elapsed between referral and initial otolaryngology evaluation for patients from ED/IM services compared to 65 days for outpatient clinics (p<0.01). Finally, 48% of patients experienced a delayed start of treatment (defined as >45 days from biopsy), 38% started on time, and 14% did not begin treatment at all.

Conclusions: The origin of the referral for otolaryngology evaluation has significant relevance and potential impact in the initial stage as well as time intervals between evaluation, diagnosis, and treatment for HNSCC patients.

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INTRODUCTION

Cancers of the head and neck account for 3% of new cancers per year. Head & neck squamous cell carcinoma (HNSCC) is aggressive, with a mortality rate of nearly 50%.[1] Studies have shown that the stage at diagnosis is the most important contributor to prognosis, yet nearly half of HNSCC are advanced-stage (Stage III/IV) upon diagnosis.[2] A variety of factors contribute to these delays.[3] Some are patient driven, including inability to identify concerning symptoms, perception of benignity, or socioeconomic barriers.[4] Others are provider-driven, such as the diagnostic complexity associated with multiple comorbidities and resource disparities between hospitals.[5] These factors lengthen the time to appropriate management of HNSCC and limit options for treatment and survival.

In light of these challenges, primary care practitioners (PCPs) represent a significant resource to improving outcomes. Studies show that a higher density of PCPs is associated with better health within a community.[6] In addition, more frequent PCP visits have been linked with greater outcomes in patients with breast cancer.[7] However, at the Grady Memorial Hospital (GMH), the main safety-net hospital serving Atlanta, GA, many patients do not have PCPs. Consequently, these patients find their gateway to healthcare through the Emergency Department (ED), oftentimes with much more advanced-stage disease. Our study aims to analyze the impact of referral site on the staging and management timeline of disease among patients diagnosed with HNSCC at GMH.

METHODS & MATERIALS

100 patients diagnosed with HNSCC at the GMH Otolaryngology Clinic between 2011-2015 were identified based on the hospital's EPIC (Madison, WI) EMR system. A retrospective chart review was performed and data collected on demographics, primary site/staging of cancer, and referral service. Time intervals between referral placement, initial otolaryngology evaluation, biopsy, treatment initiation, and treatment completion were quantified. Given that intervals >45 days between diagnosis and treatment have been associated with worsening locoregional control and survival,[8] we defined delayed treatment initiation as a >45-day interval between cancer biopsy and start of treatment. Statistical analysis was performed using Microsoft Excel v. 14.1 (Redmond, WA) and STATA v. 12 (College Station, TX).

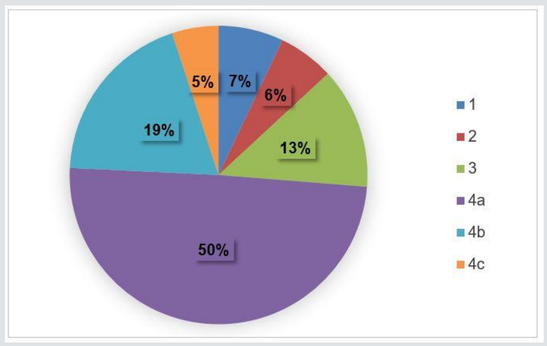

Fig. 1: Pie graph illustrating distribution of patients' cancer stages at presentation to our clinic.

RESULTS

In our 100-patient cohort, 83% were male and the average age was 59.6 years. A large majority (87%) of patients presented with advanced-stage cancers [Fig. 1]. The most common site of referral (43%) was the ED, which was significantly higher than the next most common site, PCPs (20%, p<0.01). The third most common site (12%) was the inpatient medicine service (IM) [Fig. 2]. Together, the non-outpatient services (ED and IM) make up 55% of total referrals.

The site of referral was significantly associated with stage at diagnosis (p<0.01). The fraction of patients presenting with Stage IV cancer referred from the ED/IM services (83%) was significantly higher than that from a PCP/outpatient service (59%, p<0.01) [Fig. 3].

The site of referral was also significantly associated with management timeline. Less time elapsed between referral placement and initial otolaryngology evaluation for patients referred from ED/IM services (18 days) compared to patients referred from PCP/outpatient services (65 days, p<0.01). There was no significant difference for any other time intervals; an average of 20.9 days elapsed between initial otolaryngology evaluation to diagnosis and 55.3 days from biopsy to treatment. 48% of patients experienced delay to treatment initiation, 38% started on time, and 14% did not begin at all; this was not associated with site of referral.

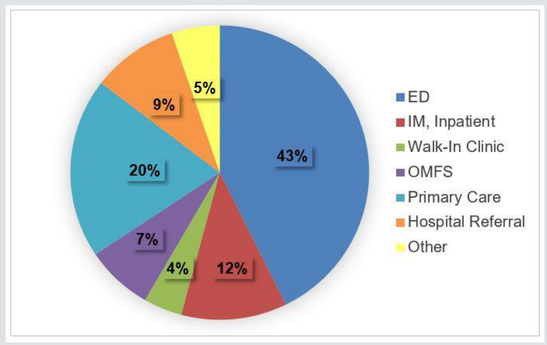

Fig. 2: Pie graph illustrating the distribution of patients' initial site of referral to our clinic.

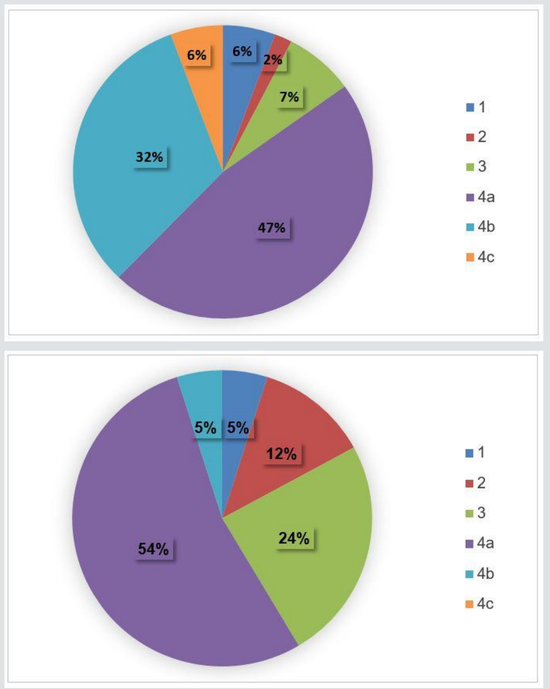

Fig. 3. Pie graph illustrating the distribution of cancer stages at presentation among patients who were referred from a non-outpatient service (top) and from a PCP or outpatient office (bottom).

DISCUSSION

Our findings reemphasize the pervasive issue of diagnostic and treatment delays in HNSCC management. A large fraction of our patients presented with advanced-stage cancer, and nearly half experienced delays in treatment initiation.

In addition, we uncovered significant associations between origin of referrals, stage at diagnosis, and management timelines. Patients referred from the ED/IM services were more likely to present with advanced-stage cancer, suggesting limited access to primary care services. However, these patients experienced shorter wait intervals between referral and initial otolaryngology evaluation, possibly due to the higher acuity conditions they present with and the fact that they are seen in the same admission.

Patients referred from outpatient clinics were less likely to have advanced-staged cancers, suggesting the PCP's role in HNSCC management. Studies have shown PCPs can help reduce diagnostic delay in head and neck cancer and guidelines encourage their participation in HNSCC screening.[9,10] In addition, establishing clinical guidelines for referral to otolaryngology may also help, as has been attempted in the United Kingdom to lukewarm results.[11] Implementation of clinical care pathways (CCPs) which have been lauded for their efficacy in reducing hospital costs and length-of-stay,[12] may hold yet another key to reducing delays to treatment initiation.

Strengths of our study include the unique setting of a safety-net hospital. Limitations include the short time interval, retrospective design, and a relatively small sample size.

CONCLUSIONS

As our findings suggest, PCPs are an important resource towards more efficient cancer treatment. Future investigations should delve into outcome variables to determine whether referral sites impact prognosis and investigate whether these trends can be generalized to private hospitals. In addition, efforts should be aimed at improving PCP awareness for HNSCC screening, developing clinical guidelines, and implementing CCPs to streamline care.

REFERENCES

1. Surveillance, Epidemiology, and End Results Program. Research Data: 1973-2012. NCI, Surveillance Systems Branch; 2015. Available at: www.seer.cancer.gov.
2. Stefanuto P et al. Delays in treatment of oral cancer: a review of the current literature. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014;117(4):424-429.
3. Patel UA et al. Disparities in head and neck cancer: assessing delay in treatment initiation. Laryngoscope. 2012;122(8):1756-1760.
4. Guggenheimer JV et al. Factors Delaying the Diagnosis of Oral and Oropharyngeal Carcinomas. Cancer. 1989;64(4):932-935.
5. Goy J et al. Diagnostic delay and disease stage in head and neck cancer: a systematic review. Laryngoscope. 2009;119(5):889-898.
6. Starfield B et al. Contribution of Primary Care to Health Systems and Health. The Milbank Quarterly. 2005;83(3):457-502.
7. Roetzheim RG et al. Influence of primary care on breast cancer outcomes among Medicare beneficiaries. Ann Fam Med. 2012;10(5):401-411.
8. Murphy CT et al. Survival Impact of Increasing Time to Treatment Initiation for Patients With Head and Neck Cancer in the US. J Clin Oncol. 2016;34(2):169-178.
9. Reid BC et al. Continuity of care and early diagnosis of head and neck cancer. Oral Oncol. 2006;42(5):510-516.
10. Epstein JB et al. Screening for and diagnosis of oral premalignant lesions and oropharyngeal squamous cell carcinoma. Can Fam Physician. 2008;54:870-875.
11. Neal RD et al. Comparison of cancer diagnostic intervals before and after implementation of NICE guidelines: analysis of data from the UK General Practice Research Database. Br J Cancer. 2014;110(3):584-592.
12. Sherman D et al. Laryngectomy clinical pathway: development and review. J Otol. 2001;30(2):115-120.