



ORIGINAL RESEARCH

Advance care planning in adults with oral cancer: Multi-institutional cross-sectional study

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Abstract

Purpose: Patients undergoing head and neck surgery are often elderly and frail with significant comorbidities. Discussion and documentation of what patients would desire for end-of-life care and decision-making is, therefore, essential for delivering patient-centered care.

Materials and Methods: This was a retrospective, cross-sectional study of patients undergoing surgery for head and neck cancer at two large, academic, tertiary care centers in Canada. Advance care planning was defined as any documentation of advance directives, resuscitation orders, or end-of-life care preferences.

Results: Among 301 patients, advance care planning was documented for 31 (10.3%). Patients with locally advanced disease (T3+) were twice as likely to have advance care planning documentation compared to those with early disease (RR 1.97, 95%CI [0.98, 3.97]).

Conclusions: In this multi-institutional cross-sectional study of two large academic centers, we have demonstrated that advance care planning and documentation is overall poor in patients undergoing surgery for oral cancer. These findings may have health policy implications, as advance care planning is associated with increased patient and provider satisfaction and improved alignment of patient goals and care delivered. Future work will investigate barriers and facilitators to advance care-planning documentation in this setting.

KEYWORDS

advance care planning, cancer, head and neck neoplasms, oral, patient-centered care

1 | INTRODUCTION

Patients undergoing head and neck surgery tend to be elderly and are often frail, and postoperative complications engender subsequent morbidity and mortality.¹ Discussion and documentation of advance

care planning (ACP) is, therefore, crucial in delivering patient-centered care.² Despite this importance, many physicians are unaware of, and poorly document, the resuscitation preferences of their patients. This study aims to describe ACP documentation among adults who underwent surgery for oral cancer.

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TABLE 1 Comparison of clinicodemographic characteristics between patients with and without advance care planning documentation

Covariate	ACP documented	No ACP documented	P value	SMD
Age (years)	63.9	60.8	.35	0.18
Sex			.07	0.44
Male	16 (8.1)	182 (91.9)		
Female	15 (14.7)	87 (85.3)		
Missing = 1				
Religion			.08	0.5
Catholic	5 (19.2)	21 (80.8)		
Other	2 (9.5)	19 (90.5)		
No affiliation	2 (3.6)	53 (96.4)		
Did not disclose	12 (6.7)	167 (93.3)		
Missing = 20				
ECOG			.35	0.33
0	13 (8.2)	145 (91.8)		
1	16 (13.3)	104 (86.7)		
2	1 (5.6)	17 (94.4)		
3	1 (25.0)	3 (75.0)		
Missing = 1				
Smoking history			.17	0.4
Current Smoker	15 (12.6)	104 (87.4)		
Former Smoker	4 (4.9)	77 (95.1)		
Never Smoker	12 (12.1)	87 (88.8)		
Missing = 1				
Alcohol history			.28	0.19
Ever	10 (8.1)	20 (12.0)		
Never	114 (91.9)	147 (88.0)		
Missing = 1				
Subsite			.87	0.11
FOM	7 (12.1)	51 (87.9)		
Tongue	13 (9.6)	123 (90.4)		
Other	11 (10.4)	95 (89.6)		
Missing = 1				
Tumor stage			.28	0.37
T1	3 (6.7)	42 (93.3)		
T2	8 (7.3)	102 (92.7)		
T3	6 (14.0)	37 (86.1)		
T4	14 (14.0)	86 (86.0)		
Missing = 3				
Nodal stage			.25	0.38
N0	10 (8.8)	104 (91.2)		
N1	2 (5.0)	38 (95.0)		
N2	18 (12.8)	123 (87.2)		
N3	1 (33.3)	2 (66.7)		
Missing = 3				

(Continues)

TABLE 1 (Continued)

Covariate	ACP documented	No ACP documented	P value	SMD
Stage			.51	0.34
I	2 (10.5)	17 (89.5)		
II	2 (4.9)	39 (95.1)		
III	7 (9.0)	71 (91.0)		
IV	20 (12.6)	139 (87.4)		
Missing = 4				
Adjuvant or concurrent chemotherapy			.21	0.14
Yes	4 (6.1)	26 (11.4)		
No	62 (93.9)	202 (88.6)		
Missing = 7				
Complications			<.01	0.14
Yes	25 (17.1)	121 (82.9)		
No	5 (3.4)	144 (96.6)		
Missing = 6				
Site	NS	NS	<.01	1.12

Abbreviations: ACP, advance care planning; ECOG, Eastern Cooperative Oncology Group Performance Status; FOM, floor of mouth; NS, not shown (for anonymity purposes); SMD, standardized mean difference.

2 | METHODS

This was a cross-sectional study at two academic centers. Adult patients with oral cancer between 2005 and 2019 were included from available institutional databases. Included patients were limited to those with available ECOG status due to the expected association with ACP documentation.^{3,4} ACP, defined as any documentation of advance directives, resuscitation orders, or end-of-life care preferences, was collected from pre-operative clinic notes and medical records during post-operative admission. Institutional review board approval was obtained from the University Health Network Research Ethics Board and the Nova Scotia Health Authority Research Ethics Board. Statistical analyses were performed with Chi-Square analysis for categorical variables, Student's *t*-tests for continuous variables, and all variables were compared with standardized mean differences.

3 | RESULTS

Among a cohort of 301 patients, ACP was documented for 31 (10.3%). The majority of patients were recruited from one center (92%). Among a subset without a pre-existing plan before surgery ($n = 26$), 12 ACPs (46.1%) were recorded by attending surgeons, 6 by resident physicians (23.1%), and 7 by nursing staff (26.9%).

Age, sex, and religion did not differ between those with or without ACP documentation (Table 1). Patients with locally advanced

disease (T3+) were almost twice as likely to have ACP documentation compared to those with early disease (RR 1.97, 95%CI[0.98, 3.97]). Complications during admission were also associated with ACP documentation in unadjusted analysis (RR 1.83, 95%CI[1.5, 2.4]). In cases where ACP documentation was established before surgery, no changes or alterations to ACP documentation were identified throughout any admissions.

Services documenting the initial ACP status varied and included Otolaryngology—Head & Neck Surgery (OHNS; $n = 12$, 41.4%) and other ($n = 17$, 58.6%). There was a significant difference in documentation between sites ($P < .01$).

4 | DISCUSSION

Identifying preferences for end-of-life management is essential to providing patient-centered care. In addition to poor ACP records, we found that the otolaryngology—head & neck surgery service contributed less than half of ACP documentation. This highlights a need for education and quality improvement, and holds health policy implications.⁵

Despite patients and physicians recognizing the importance of ACP, patients with cancer frequently have no documented end-of-life plan.⁶ Barriers to the documentation of ACP frequently include an absence of training and lack of sufficient time.⁷ In a study by Redmann and colleagues, more than half of surgeons reported they would not perform high-risk operations on patients with advance directives that limited post-operative life-sustaining interventions.⁸ For some patients, discussion of ACP is left until a complication or potentially life-threatening event has occurred. However, the acute nature of such events may necessitate prompt intervention and adequate time for appropriate discussion and documentation may not be available. Many patients with advanced cancer have delirium and inhibited communication abilities during the last days of their life.⁹ Further, ACP includes a broad discussion of overall patient goals, values, and beliefs and helps guide care, increase satisfaction with quality of care, and reduce moral and emotional burden on patients, families, and clinicians. Therefore, quality improvement in the form of clinician education on the importance of ACP documentation and identifying facilitators and barriers for implementation of standardized documentation practices in head and neck cancer may be future avenues for improving documentation rates. Targeted reminders and educational activities have been found to be beneficial in other cancer sites, with some interventions doubling the rate of ACP documentation.¹⁰ For example, Epstein and colleagues implemented an educational cardiopulmonary resuscitation (CPR) video for patients with progressive hepatobiliary or pancreatic cancer, increasing ACP documentation to 40% compared to 15% in a CPR narrative.¹¹

Although advanced cancer was associated with increased ACP documentation in this study, 86% of patients with T3 disease or greater did not have documentation. ACP discussions aid in providing patient-centered care in those facing life-limiting disease, without increasing psychological distress.¹²

The findings of this study must be interpreted within context of the study design. Misclassification bias is possible with absence of pre-existing documentation in the medical records. In addition, this study is exploratory and is unable to elucidate the precise cause of poor ACP documentation. Ideally, ACP documentation occurs before admission to hospital, with the physician most known to the patient, and are documented appropriately. The temporal relationship between ACP documentation and occurrence of complications should be further delineated in future studies. Due to sampling of entire institutional databases, this study spanned many years and therefore ACP documentations may not have been stable over time. Despite our relatively large sample size, the event rate of ACP documentation was low, and thus limits statistical power in this study. Future studies may be able to leverage the increasing use of integrated electronic medical records to capture more patients, including those with documented frailty and performance status. Finally, this study did not compare specific comorbidities, but did incorporate performance status.

5 | CONCLUSION

This study demonstrates that ACP documentation was scarce for patients undergoing head and neck surgery. In support of patient-centered care, there is a need to provide education on ACP documentation, to identify and address barriers for end-of-life planning in head and neck oncology, and to facilitate quality improvement interventions.

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CONFLICT OF INTEREST

Dr Goldstein conducts research on frailty in head and neck cancer. Dr Forner and Dr Goldstein conduct research on shared decision-making in head and neck cancer. There are no other conflicts of interest.

AUTHOR CONTRIBUTIONS

David Forner: study conceptualization, study design, data collection, data analysis, preparation of manuscript, critical revision of manuscript, and final approval of manuscript. **Daniel J. Lee:** study conceptualization, study design, data collection, preparation of manuscript, critical revision of manuscript, and final approval of manuscript. **Rajan Grewal:** study design, data collection, critical revision of manuscript, and final approval of manuscript. **Jenna MacDonald:** data collection, critical revision of manuscript, and final approval of manuscript. **Christopher W. Noel:** study design, critical revision of manuscript, and final approval of manuscript. **S. Mark Taylor:** study conceptualization, study design, critical revision of manuscript, and

final approval of manuscript. **David P. Goldstein:** study conceptualization, study design, critical revision of manuscript, and final approval of manuscript.

DATA AVAILABILITY STATEMENT

The datasets during and/or analyzed during the current study are available from the corresponding author on reasonable request.

ETHICS STATEMENT

This study was approved by the University Health Network Research Ethics Board and the Nova Scotia Health Authority Research Ethics Board.

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