

Assessing the Need for an Educational Intervention for Primary Care Practitioners on HPV-Related Oropharyngeal Cancer

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Abstract

Background and Objectives: Human papillomavirus (HPV) is causing an epidemic of oropharyngeal squamous cell carcinoma (OPSCC). Patients presenting with HPV-related OPSCC tend to be younger than patients with non-HPV-related OPSCC and lack the traditional OPSCC-related risk factors of smoking and alcohol use. The objective of the present study is to assess whether knowledge of this demographic shift in the patient population affected by OPSCC has been disseminated to primary care practitioners.

Methods: A quantitative cross-sectional needs assessment was performed using an original questionnaire. The questionnaire assessed general knowledge regarding OPSCC and its recognition in at-risk patients and was distributed to family physicians, family medicine residents and advanced practice registered nurses in Ontario, Canada.

Results: Of 11,000 primary care practitioners contacted, fifty-four responded (0.5% response rate), the majority of whom were CCFPs (n=29; 59.18%) or FCFPs (n=9; 18.37%). The survey included two case scenarios of patients presenting with possible OPSCC and eleven true/false questions. In Case 1, the majority of respondents (98%; n=50) indicated that they would not refer the patient immediately. Of those who did not refer after first and second line management (n=33), the majority (n= 20; 60.6%) would wait 1-4 weeks before referring. In Case 2, a sexual history was elicited always (64.7%; n=33), sometimes (31.37%; n=16) and never (3.92%; n=2), while smoking and alcohol history was almost always elicited (90.2%; n=46 and 62.8%; n=32, respectively). Two out of eleven true/false questions regarding prevalence and prognosis were answered incor-

rectly by a majority of respondents: 69.4% (n=34) falsely believed that tonsillar cancer is not the most prevalent type of oropharyngeal cancer in Canada; 59.2% (n=29) falsely believed that there is a poorer overall survival rate associated with HPV-related tonsillar cancer as compared to non-HPV-related tonsillar cancer. Most participants (95.9%; n=47) expressed an interest in learning more about OPSCC.

Conclusions: The results of the questionnaire suggest that a knowledge gap exists among primary care practitioners regarding the demographic shift in OPSCC. Closing this knowledge gap may lead to earlier referral to head and neck specialists and lead to improved patient outcomes.

Background

Head and neck squamous cell carcinoma is the sixth most common cancer globally.¹ From 1992 to 2006, the incidence of oropharyngeal squamous cell carcinoma (OPSCC) in Canada increased by 27.1% in men and by 13.7% in women.⁶ A growing body of research suggests that human papillomavirus (HPV) has played a major part in the emerging epidemic of OPSCC,^{3,6} with studies demonstrating that 80% of OPSCC is attributable to HPV infection.^{3,5}

Risk factors for HPV-related OPSCC differ from those for non-HPV-related OPSCC.⁷⁻¹⁰ Risk factors for non-HPV OPSCC include smoking, alcohol consumption, and older age.³ On the other hand, risk factors for HPV-related OPSCC include high lifetime number of sexual partners, oral sex, and earlier age at sexual debut.⁷⁻¹⁰ The incidence of non-HPV OPSCC in North America has declined in recent years, consistent with a decrease in tobacco use.³ Although there are likely additional contributing factors, the emerging epidemic of HPV-related OPSCC is likely at least in part due to changing sexual practices.^{1-5,7,10,11}

Early detection of HPV-related OPSCC is important, as HPV-related-OPSCC has a better prognosis than non-HPV related-OPSCC and because treatment has a high potential for cure.¹⁸⁻²⁰ However, early detection can be challenging in this patient population, as patients often present with symptoms also associated with other prevalent diseases, such as chronic tonsillitis and lymphadenitis.¹⁹

The role of primary care practitioners in early detection and subsequent referral cannot be overemphasized. It is hypothesized that educating primary care practitioners about the etiologic shift in OPSCC might allow for otherwise-missed early disease detection in this emerging at-risk population. The objective of this pilot study is to assess the knowledge of primary care practitioners regarding the change in epidemiology and etiology of OPSCC. We predict that this new information about the epidemiologic shift of OPSCC has not been adequately disseminated to primary care practitioners.

Methods

Research participants were recruited through the Ontario College of Family Physicians (OCFP). After obtaining Research Ethics Board (REB) approval, the questionnaire was distributed by the OCFP. Included in this group were family physicians, family medicine residents, registered nurses and advanced practice nurses. Only respondents who perform office-based care were excluded from the study. Informed consent was obtained from all participants.

This study is a quantitative cross-sectional needs assessment. A thorough review of the relevant literature revealed no pre-existing studies that adequately addressed the research question. The questionnaire was devised by two otolaryngologists and revised by two family physicians. Questions were either multiple choice or true/false, and assessed five areas: (1) respondent demographics; (2) management; (3) detection; (4) general knowledge; and (5) continuing medical education.

The questionnaire was emailed to OCFP members as a SurveyMonkey® (SurveyMonkey Inc., Palo Alto, USA) link. Descriptive statistics were also performed using SurveyMonkey®.

Results

Of the 11,000 primary care practitioners who received the questionnaire-containing email, 54 eligible individuals responded (0.49% response rate). Respondent demographics are summarized in Table 1.)

The survey included two case scenarios and eleven true/false questions. Results of the two case scenarios are presented in Table 2 (Figures 1 and 2) and Table 3. Results are presented as the relative frequency of responses among participants. Of the 11 true/false questions, the majority of respondents selected the correct response in all questions, except for two. Most participants (69.4%, n=34) falsely believed that tonsillar cancer is not the most prevalent type of oropharyngeal can-

cer in Canada and that there is a poorer overall survival rate associated with HPV-related tonsillar cancer as compared to non-HPV-related tonsillar cancer.^{1,15} In the first of two multiple choice question, respondents identified risk factors for tonsillar cancer, with the following response frequency: 100% (n=49) HPV; 98% (n=48) smoking; 89.8% (n=44) alcohol; 42.9% (n=21) environmental, and 28.6% (n=14) Epstein-Barr Virus (EBV). The second multiple choice question asked respondents to identify symptoms of tonsillar cancer at presentation, with results as follows: neck mass, throat pain, and odynophagia identified by 95.9% (n=47) of respondents; dysphagia and ear pain identified by 71.4% (n=35) of respondents.

Table 1. Respondent Demographics

	No. of Respondents	Percent of Respondents (%)
Clinical Practice Settings		
Family health team, organization or network	23	47.0
Family health group	6	12.2
Academic teaching unit	4	8.2
Community health centre	5	10.2
Solo	2	4.1
Other	9	18.4
Levels of Post-Graduate Training		
FCCP	9	18.4
CCFP	25	51.0
APRN	1	2.0
PGY1	4	8.2
PGY2	6	12.2
PGY3	3	6.1
Other	1	2.0
Length of Time in Practice		
Currently in residency	11	22.5
0-5 years	14	28.6
6-10 years	7	14.3
11-20 years	8	16.3
>20 years	9	18.4
Average Number of Patients per Week		
<50 patients	13	26.5
50-100 patients	30	61.2
100-150 patients	6	12.2
Predominant Age Group in Practice		
0-20 years old	2	4.1
21-40 years old	16	32.7
41-60 years old	24	49.0
61-80 years old	7	14.3

Table 2. Case 1

A 45-year-old presents with a sore throat and an enlarged left tonsil

	No. of Respondents	Percent of Respondents (%)
“What would be your first line of treatment?”		
Observation with follow-up	8	15.7
Complete the Sore Throat Score Card and follow its guidelines	23	45.1
Swab for culture & sensitivity	15	29.4
Antibiotics	4	7.8
Referral	1	2.0
“If this patient’s symptoms do not improve with observation or antibiotics, what would be your second line treatment?”		
Continued observation with follow-up	4	7.8
Swab for culture & sensitivity if you empirically treated the patient	14	27.5
2nd line antibiotics	3	5.9
Referral	18	35.3
Further investigations (please specify)	12	23.5
Bloodwork	6	50
Head and neck ultrasound	5	41.7
Head and neck MRI	1	8.3
Those who had not yet referred this patient were asked, “If the patient has persistent symptoms, how long would you wait before referring?”		
<1 week	1	3.0
1-4 weeks	20	60.6
5-12 weeks	12	36.5
>12 weeks	0	0
“If the same patient presents with neck lymphadenopathy on the affected side, what would be your next step?”		
Observation	3	9.1
Swab	5	15.2
Antibiotics	3	9.1
Referral	12	36.4
Further investigations (please specify)	10	30.3
Ultrasound	6	60
Ultrasound with TSH	1	10
Bloodwork	1	10
Bloodwork with biopsy	1	10
CT neck and MRI	1	10
“Do you routinely palpate the tonsil or tongue base in a patient presenting with a unilateral tonsil mass with sore throat?”		
All the time	6	11.7
Sometimes	11	21.6
Never	34	66.6
“Do you routinely examine the neck for lymphadenopathy in patients presenting with a unilateral tonsil mass with sore throat?”		
All the time	49	96.1
Sometimes	2	3.92
Never	0	0

Table 3. Case 2

A 45-year-old non-drinker, non-smoker presents with a 5 week history of progressively worsening sore throat, an asymmetrically enlarged left tonsil, and an enlarged lymph node on the affected side

	No. of Respondents	Percent of Respondents (%)
“What is on your differential diagnosis?” (Select all that apply)		
Bacterial tonsillitis	30	58.8
Viral tonsillitis	19	37.3
Peritonsillar abscess	44	86.3
Tonsillar cancer	41	80.4
Lymphoma	31	60.8
“Would you take a sexual history?”		
All the time	2	3.92
Sometimes	33	64.7
Never	16	31.4
“If yes, would you include oral sex in your history of this patient?”		
All the time	12	24.5
Sometimes	20	40.8
Never	17	34.7
“If yes, would you include number of sexual partners in your history of this patient?”		
All the time	7	14.3
Sometimes	23	46.9
Never	19	38.8
“Would you take a smoking history?”		
All the time	46	90.2
Sometimes	3	5.9
Never	2	3.9
“Would you take an alcohol history?”		
All the time	32	62.8
Sometimes	15	29.4
Never	4	7.8

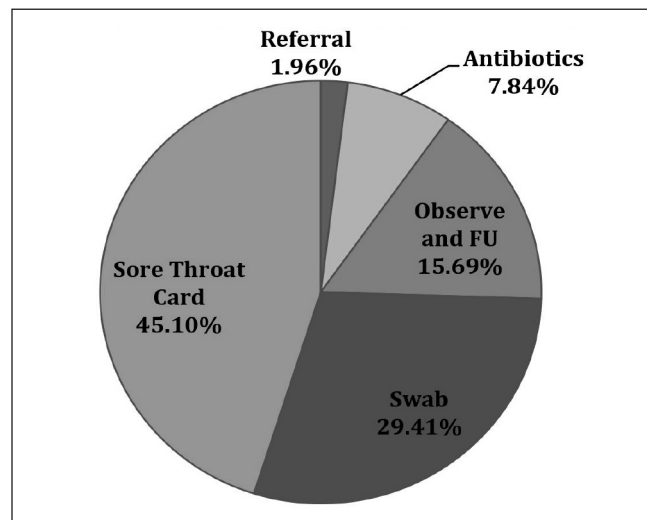


Figure 1. Case 1 – First Line of Management

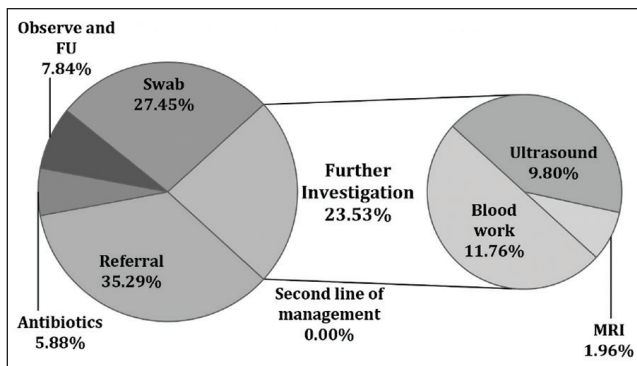


Figure 2. Case 1 – Second Line of Management

The majority of respondents answered that they were aware that HPV causes tonsillar cancer (69.4%; n= 34 versus 30.6%; n=15) and that they learned this through: medical training (52.9%; n=18); independent reading (35.3%; n=12), continued medical education (CME) (29.4%; 10); conferences (17.7%; n=6); the media (11.8%; n=4); other (14.7%; n=5). Of the five who responded “other,” four had personal contact with a patient with HPV-related OPSCC. All but two participants (95.9%, n=47) expressed an interest in learning more about HPV and OPSCC, and identified their preferred educational modalities (respondents could select more than one answer): continuing medical education (CME) (77.6%; n=38); online CME (71.3%; n=35); an educational pamphlet (46.9%; n=23); a group lecture (34.7%; n=17); one-to-one teaching (10.2%; n=5).

Discussion

The results of the present study demonstrate a gap in the knowledge of primary care practitioners regarding the recent epidemiologic shift in OPSCC. While the results suggest that the majority of primary care practitioners are aware of the risk factors for non-HPV OPSCC, only some are aware of those associated with HPV-related OPSCC. Furthermore, while the majority of respondents considered tonsillar cancer in their differential diagnosis for Case 1, only one elected to refer a patient with persistent symptoms within a week. One third of respondents reported that they would wait between one and three months before making a referral. This time lapse between patient presentation and referral is a delay that could be reduced.

There are some key limitations to this study. Firstly, a poor response rate and resulting small sample size meant that only descriptive statistics could be utilized for analysis. In addition, the small sample size might confer a lack of generalizability to the broader community of primary care practitioners. The degree of generalizability might be further impaired by the fact that 65% of respondents had been in practice for less than 10 years. Secondly, while a variety of professionals were consulted in the making of the original questionnaire utilized, it is not a formally validated tool. There is also an

inherent rigidity in the asking of closed-ended questions, limiting detail in answers that could have been available with an open-ended question format. Finally, by virtue of not having a control group in this study (i.e., a group that is aware of the etiologic shift in OPSCC), the baseline error rate in responses is unknown. As such, it cannot be concluded that the results indicate a true gap in knowledge among primary care practitioners.

The aim of this study was to assess knowledge of the epidemiologic shift in OPSCC in the primary care setting. Improving OPSCC-related knowledge in primary care practitioners may allow for earlier identification of HPV-related OPSCC and for more expedient referral to head and neck specialists, potentially improving patient outcomes.

When respondents were asked if they were interested in further education regarding HPV-related OPSCC, 95.9% answered positively. The knowledge gap demonstrated by this study, coupled with this interest in education, suggests that an educational strategy is not only needed, but would also be welcomed in this community of practitioners. According to the respondents of this survey, the preferred method would be via a modular online CME model.

This study represents an initial analysis of the knowledge gap among primary care practitioners regarding the etiology of OPSCC. A logical extension of this project might involve implementing an educational intervention relating to OPSCC and subsequently assessing its efficacy. Ideally, education of practitioners will result in expedited diagnosis and improved patient survival.

Conclusions

Our results indicate that knowledge of the etiologic shift in OPSCC has not adequately been disseminated among primary care practitioners. This likely contributes to the diagnostic delay related to OPSCC and subsequent referral to a head and neck specialist. More research is warranted to further understand the depth of this knowledge gap and how best to address it.

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