



Cannabis use in patients with head and neck cancer and radiotherapy outcomes



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Introduction

- Cannabis use is increasing, with 18 states having fully legalized use (i.e., medicinal and recreational use) and 45 states permitting medicinal use as of June 2021
- As such, the prevalence of cannabis use among patients presenting for treatment of head and neck cancer (HNC) is likely to increase as well
- Anecdotally, patients are asking about cannabis use during cancer treatment, either based on their own interest or suggestion from family or friends, or are coming to treatment having already started cannabis use
- However, to date, oncology professionals treating HNC are lacking sufficient data to aid in advising their patients on use during their cancer care
- Due to this lack of data, patients are often advised in a harm reduction strategy of avoiding smoking or vaporizing cannabis and, instead, using edibles or oils should they intend to continue use
- Though we have good data around poorer survival and local cancer control outcomes for those using tobacco during treatment for HNC,^{1,2} and there is new data supporting the role of cannabis use in the development of HPV-mediated HNC,³ however, the impact of cannabis use on survival and local cancer control in HNC is not well understood
- **This study examines the associations between cannabis use and symptom management, treatment adherence, and survival in patients with squamous cell carcinoma of the head and neck receiving definitive or adjuvant radiation or chemoradiation**

Methods

- All new patients to the Department of Otolaryngology – Head & Neck Surgery underwent a psychosocial and substance abuse assessment with the Health Psychologist within the Department
- Treatment adherence was defined as unplanned breaks in treatment or elective non-completion of prescribed radiation or chemotherapy dose
- Demographic, disease specific, symptom management, and adherence data was gathered via retrospective review
- Patients receiving definitive or adjuvant radiation or chemoradiation from August 2017 to September 2020 were included

References

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Results

	Total (N=148)	No cannabis use (n=63)	Current cannabis use (n=24)	Past cannabis use (n=61)	P-value
Age (years), mean (± SD)	62.1 (9.1)	63.6 (10.0)	59.0 (7.6)	61.8 (8.6)	0.10
Gender					0.95
Male, n (%)	116 (78.4)	50 (79.4)	19 (79.2)	47 (77.0)	
Female, n (%)	32 (21.6)	13 (20.6)	5 (20.8)	14 (23.0)	
Race/Ethnicity					0.76
White, n (%)	105 (72.9)	46 (78.0)	17 (70.8)	42 (68.9)	
Black, n (%)	37 (25.7)	12 (20.3)	12 (20.3)	18 (29.5)	
Hispanic, n (%)	2 (1.4)	1 (1.7)	1 (1.7)	1 (1.6)	
Marital status					0.93
Married/partnered, n (%)	115 (77.7)	48 (76.2)	19 (79.2)	48 (78.7)	
Divorced/widowed/single, n (%)	33 (22.3)	15 (23.8)	5 (20.8)	13 (21.3)	
Vital status					0.72
Deceased, n (%)	20 (13.5)	9 (14.3)	2 (8.3)	9 (14.8)	
Alive, n (%)	128 (86.5)	54 (85.7)	22 (91.7)	52 (85.2)	
Stage					0.15
Early (I-II), n (%)	88 (61.5)	35 (58.3)	19 (79.2)	34 (57.6)	
Late (III-IVb), n (%)	55 (38.5)	25 (41.7)	5 (20.8)	25 (42.4)	
Tumor Site					0.88
Nasal cavity/nasopharynx, n (%)	2 (1.4)	1 (1.6)	0 (0.0)	1 (1.6)	
Oropharynx, n (%)	86 (58.1)	33 (52.4)	17 (70.8)	36 (59.0)	
Larynx, n (%)	24 (16.2)	10 (15.9)	4 (16.7)	10 (16.4)	
Hypopharynx, n (%)	4 (2.7)	2 (3.2)	1 (4.2)	1 (1.6)	
Oral cavity, n (%)	23 (15.5)	12 (19.0)	2 (8.3)	9 (14.8)	
Other, n (%)	9 (6.1)	5 (7.9)	0 (0.0)	4 (6.6)	
HPV Status					0.44
Positive, n (%)	71 (49.3)	28 (47.5)	16 (66.7)	27 (44.3)	
Negative, n (%)	27 (18.8)	9 (15.3)	4 (16.7)	14 (23.0)	
Cigarette use at diagnosis					<0.001
Yes, n (%)	41 (27.7)	4 (6.3)	12 (50.0)	25 (41.0)	
No, n (%)	107 (72.3)	59 (93.7)	12 (50.0)	36 (59.0)	
Alcohol use at diagnosis					0.13
None, n (%)	60 (40.5)	30 (47.6)	7 (29.2)	23 (37.7)	
Social, n (%)	61 (41.2)	22 (34.9)	9 (37.5)	30 (49.2)	
Heavy, n (%)	27 (18.2)	11 (17.5)	8 (33.3)	8 (13.1)	

- Survival analyses:
 - 1-year progression-free survival for no cannabis use (0.949, 95% CI 0.895-1) vs current cannabis (0.915, 95% CI 0.808-1) vs past cannabis use (0.948, 95% CI 0.892-1) – p=0.7
 - 1-year overall survival probability for no cannabis use (0.918, 95% CI 0.852-0.990) vs current cannabis use (0.952, 95% CI 0.866-1) vs past cannabis use (0.900, 95% CI 0.828-0.979) – p=0.78

Results

	Total (N=148)	No cannabis use (n=63)	Current cannabis use (n=24)	Past cannabis use (n=61)	P-value
Treatment adherence					0.03
Yes, n (%)	124 (83.8)	58 (92.1)	17 (70.8)	49 (80.3)	
No, n (%)	24 (16.2)	5 (7.9)	7 (29.2)	12 (19.7)	
Cigarette use during treatment					0.88
Yes, n (%)	9 (27.3)	2 (28.6)	2 (22.2)	5 (29.4)	
No, n (%)	23 (69.7)	5 (71.4)	7 (77.8)	11 (64.7)	
Worst pain during treatment, 0-10, mean (± SD)	6.7 (2.3)	6.4 (2.3)	7.5 (2.1)	6.7 (2.3)	0.16
Worst grade of toxicity during treatment, 0-5, mean (± SD)					
Mucositis	3.3 (0.7)	3.2 (0.7)	3.5 (0.7)	3.4 (0.8)	0.26
Salivary gland	2.5 (0.6)	2.5 (0.5)	2.7 (0.7)	2.5 (0.5)	0.23
Pharyngeal	2.6 (0.8)	2.5 (0.8)	2.8 (0.6)	2.7 (0.8)	0.17
Laryngeal	1.7 (0.7)	1.7 (0.7)	1.8 (0.8)	1.7 (0.7)	0.85
Narcotic pain medications during treatment					0.002
Yes, n (%)	104 (70.03)	39 (61.9)	24 (100.0)	41 (67.2)	
No, n (%)	44. (29.7)	24 (38.1)	0 (0.0)	20 (32.8)	
Number of pain medications during treatment, mean (± SD)	2.8 (1.5)	2.5 (1.6)	3.7 (0.9)	2.7 (1.6)	0.007
Percent weight loss during treatment, mean (± SD)	9.4 (5.9)	10.5 (6.1)	9.8 (6.3)	8.2 (5.3)	0.10
Feeding tube placed during treatment					0.54
Yes, n (%)	60 (40.5)	23 (36.5)	9 (37.5)	28 (45.9)	
No, n (%)	88 (59.5)	50 (63.5)	15 (62.5)	33 (54.1)	

Conclusions/Discussion

- Current cannabis users were more likely to be smoking cigarettes at diagnosis, are less likely to be adherent to prescribed radiation or chemotherapy course, require narcotic pain medications and more types of pain medications
- Current cannabis use was not associated with patient-reported pain, weight loss, feeding tube use, treatment toxicities, or overall or disease-free survival
- The current study argues against the use of cannabis during treatment for head and neck cancer due to lack of demonstrable benefits to symptom management, and with risks to treatment outcomes (i.e., adherence, cigarette use, narcotic use)
- Further research should examine quality of life with cannabis use in treatment