

Decoding Dysgeusia: Taste Dysfunction in Head and Neck Cancer Patients Receiving Radiotherapy



JOHNS HOPKINS

MEDICINE

RADIATION ONCOLOGY & MOLECULAR RADIATION SCIENCES

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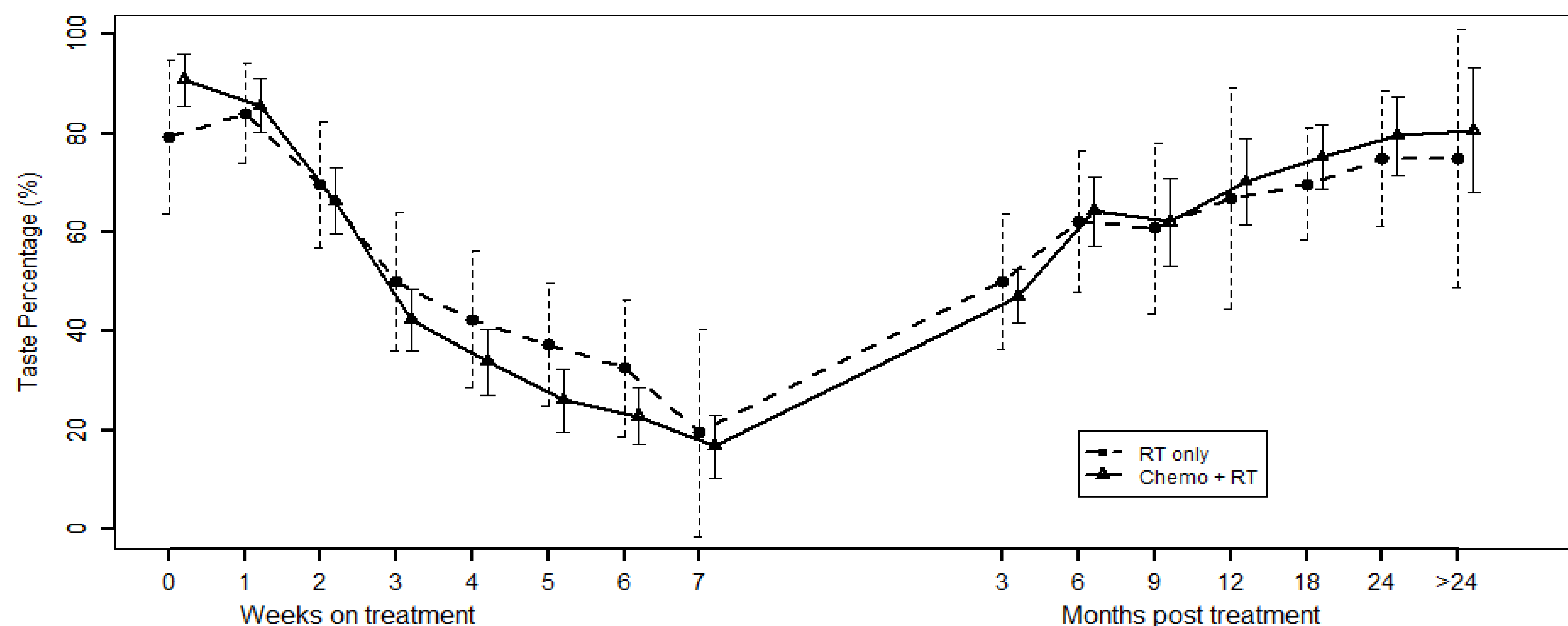
Purpose/Objectives

- Taste dysfunction (dysgeusia) in patients receiving radiotherapy (RT) leads to decline in numerous quality of life outcomes.
- How to measure this robustly remains a challenge that needs to be addressed to enable effective approaches to prevent or to treat this complication.
- This study seeks to characterize the ability to measure and characterize radiation-induced dysgeusia with a patient reported outcome measure of asking patients to provide a relative percentage of their taste function.

Materials/Methods

- Prospectively collected data at the point of care in our institutional *Oncospace* database.
- Clinicians asked patients at each time point, percent of preserved taste function, on a 1-100 scale. Data were collected at baseline, weekly through radiotherapy, and at every three months through 24 months.
- The average assessment of percent taste function at each time point was plotted from baseline to 24 months.
- A multivariate analysis was conducted to assess for patient, tumor, or treatment factors with respect to taste function.
- Included: Nasopharynx, oropharynx, hypopharynx, larynx, oral cavity cancers.
- Exclusion: Thyroid cancer, skin cancer, early stage larynx cancers, salivary cancers, rare sinonasal tumors, lymphomas. Re-RT courses, Those that did not have the PRO data collected at OTV and fu, Patients that did not have both L/R parotid dosimetry/DVH data

Results



Taste function recovered at a rate of 0.8 points improvement for every 10 days post RT
For every increase in 1 Gy in total dose, the taste function recovered 0.4 points lower
Post surgery, patients had TREND in less change in taste function over time
Advanced nodal stage: 11 points decline from baseline compared with early N stage

Variables	Univariate		Multivariate	
	Diff(95%CI)	p-value	Diff(95%CI)	p-value
N stage: Advanced vs. early	11.2(0.6, 21.9)	0.04	7.7(-3.3, 18.7)	0.17
Surgery	-10.2(-20.9, 0.5)	0.06		
Chemotherapy	11.8(-0.8, 24.3)	0.07		

Variables	Univariate		Multivariate	
	Diff(95%CI)	p-value	Diff(95%CI)	p-value
Dose per fraction	0.3 (-0.04, 0.6)	0.08		
Parotid Dose Mean	0.008 (0.02, 0.014)	0.008	0.007 (0.0006, 0.013)	0.03
Parotid D05	0.004 (0.0004, .008)	0.03		
parotid D25	0.004 (-0.0004, 0.008)	0.08		
Parotid D50	0.007 (0.002, .013)	0.01		
Parotid D90	0.01 (0.003, .018)	0.005		

Timeframe: 2010-2016

- Included: Nasopharynx, oropharynx, hypopharynx, larynx, oral cavity cancers.
- Treatment: RT alone (>5000 cGy), ChemoRT, PORT
- Total: **164** patients identified with necessary data.

Variables	N	N(%) / Mean(SD)
Age	164	59.7(10.1)
Gender, male	164	129(79%)
Race	148	
Caucasian		105(71%)
African American		30(20%)
Other		13(9%)
Surgery	164	80(49%)
Chemotherapy	164	122 (74%)

T stage	N	N(%)
Early(Tis,T0, T1, T2)	164	89 (54%)
Advanced(T3, T4)		75 (46%)
N stage	164	
Early(N0,N1, N2a, N2NOS)		74 (45%)
Advanced(N2b, N3) *		90 (55%)
Diagnosis	164	
Nasopharynx		7 (4%)
Oropharynx		124 (76%)
Oral Cavity		2 (1%)
Hypopharynx/larynx		31 (19%)

Conclusions

- The PRO of % Taste Function was a good way of characterizing the trajectory of changes in taste function over the course and recovery of RT.
- Taste function became progressively worse and reached its low point at the end of radiotherapy, slowly increasing to approaching baseline level function after 24 months in all-comers.
- Mean parotid dose, Total Dose, and Advanced Nodal Stage were the only significant findings affecting taste function on MVA.
- Surgical patients had less absolute change in taste function than definitive chemoRT patients
- Next steps include taste function relationship to xerostomia and mucositis and localization of taste function