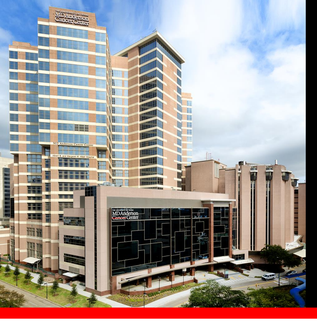

Factors associated with pain in oral cavity and oropharyngeal cancer patients during radiation therapy

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Introduction

Oral cavity and oropharyngeal cancers (OC/OPC) is estimated to affect 54,000 people annually in the United States [1]. Radiation therapy is often standard of care, but it is known to cause significant pain and can decrease overall quality of life. Causes of pain can include mucositis, xerostomia, and acute skin reactions. The average pain score during week 1 of treatment is 1.5 and increases to 5 by week 7 ($p < 0.05$). This demonstrates how there is no control for pain as patients experience a significant level of pain throughout their treatment. We hypothesize that concurrent chemotherapy will lead to increased pain. Identifying pain causing factors could help physicians better manage patients' pain levels.

The objective of this study is to assess the effect of concurrent chemotherapy, cancer type, and gender on pain profiles for OC/OPC patients who receive radiation therapy.

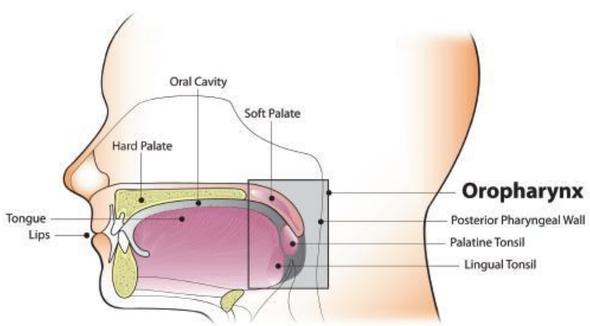

Figure 1. Location of the oral cavity and oropharynx [2]. Oral cavity includes oral tongue, gingiva, retromolar trigone, mandible, buccal mucosa, lip, hard palate, and floor of mouth. Oropharynx includes soft palate, tonsils, base of tongue, glossopharyngeal sulcus, and pharyngeal wall.

Methods

- Management of pain throughout radiation therapy by physicians
  - Patient reported pain score, pain location, frequency, descriptors, and onset are recorded
- Pain scores on a scale from 1-10
  - 0 = no pain
  - 1-4 = mild pain
  - 5-10 = moderate to severe pain
- Analysis restricted to 267 patients treated at MD Anderson for pathologically confirmed non-metastatic OC/OPC during 2016-2021
- Patients received 6-7 weeks of radiation therapy (6000-7000 cGy) for curative intent with end of treatment considered to be week 6 and 7
- Collected patient profiles, treatment information, and weekly pain scores
- t test performed to determine significance
  - Tested at $\alpha = 0.05$

Results

Variable	Number	Percentage	P value
Chemotherapy			
Concurrent	147	55%	0.80
No CC	120	45%	
Cancer Type			
OC	137	51%	0.92
OPC	130	49%	
Gender			
Male	83	31%	0.42
Female	184	69%	
HPV Status			
Positive	102	38%	
Negative	21	7.9%	
NA	144	54.1%	
Age			
30-50 years	31	11.6%	
51-70 years	162	60.7%	
71+ years	74	27.7%	

Table 1. Demographics of the patient cohort. p values from t tests indicate no significant difference across the chemotherapy, primary cancer type, and gender variables.

Results

Concurrent Chemotherapy

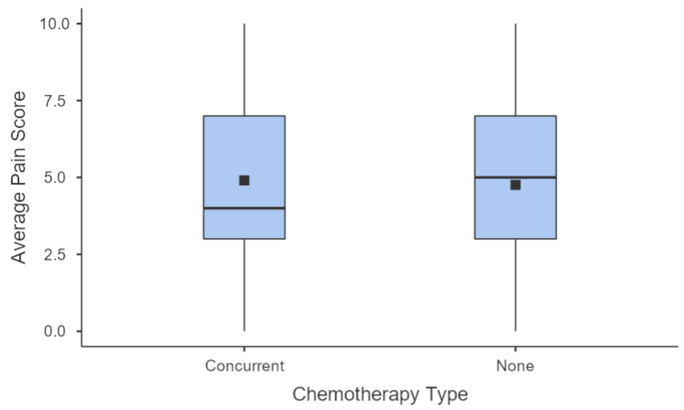

Figure 2. Pain scores of patients with concurrent chemotherapy and no chemotherapy during radiation. Mean pain score for concurrent chemotherapy = 4.90 and no chemotherapy = 4.76.

Primary Cancer Type

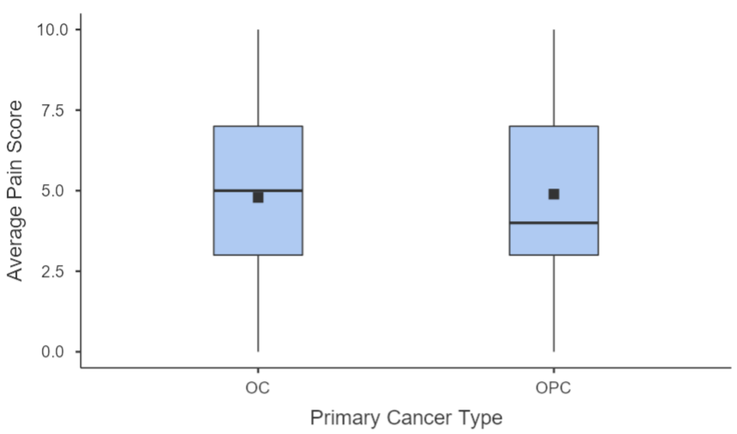

Figure 3. Pain scores of patients diagnosed with OC/OPC. Mean pain score for OC = 4.79 and OPC = 4.89.

Gender

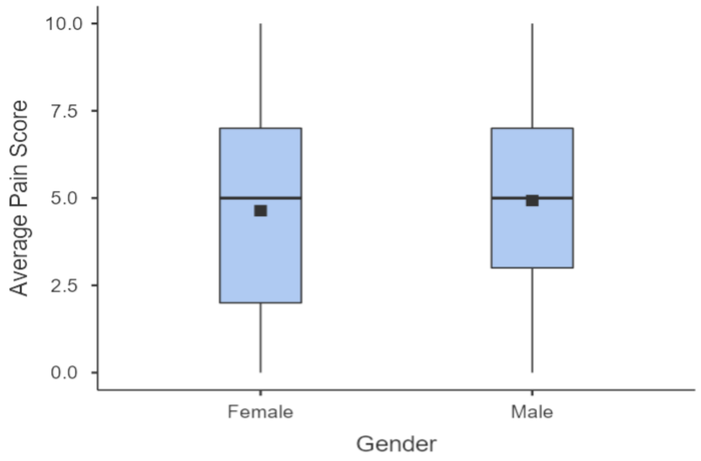

Figure 4. Pain scores of female and male patients diagnosed with OC/OPC. Mean pain score for females = 4.64 and males = 4.93.

Conclusion

Neither concurrent chemotherapy, cancer type, nor gender play a statistically significant role in predicting patients' pain severity during radiation therapy. Future directions include determining additional pain prevention measures to further decrease the mild and moderate pain experienced during treatment and increasing the cohort size. Also, exploring other clinical features such as tumor characteristics and patients' social history could help uncover other predictors of high pain severity.

References

[1] American Cancer Society. (n.d.). *Oral cavity & Oropharyngeal Cancer key Statistics 2021*. American Cancer Society. https://www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer/about/key-statistics.html.

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