Depressive Symptoms and Tumor Response Among Head and Neck Cancer Patients

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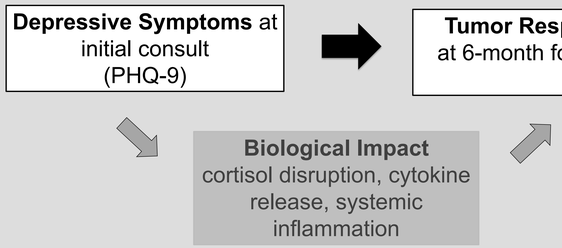
Introduction + Background

Head and neck malignancies correspond with higher rates of depressive symptoms compared to other cancers[2]. We previously reported that depression is a significant prognostic factor for tumor response – indicating a biological factor is involved[1]. Research shows depression intensifies systemic inflammation, cytokine release, and cortisol levels leading to a negative impact on tumor response[1]. We aim to expand previous research and replicate findings using a larger sample size and a more accurate depression screening.

We hypothesize that greater depressive symptoms in newly diagnosed head and neck cancers will predict less successful tumor response to treatment.



Methods

Recently diagnosed HNC patients presenting to a Multidisciplinary Clinic (n=208) reported depressive symptoms using the PHQ-9 questionnaire at initial consult. Medical records were reviewed for clinical and demographic characteristics. Tumor response was assessed at six months post treatment completion and a dichotomous variable was created to indicate complete response vs. presence of a tumor including incomplete treatment response, residual tumor, early recurrence, or death. A logistic regression was used to test the hypothesis, while linear regression and Chi-square models were used for post hoc tests.

Results

Table 1. Clinical and Demographic Characteristics (N=208)

	N	%
Male	150	72.1
Ethnicity		
White	82	83.7
Black	15	15.3
Smoking Status		
None	25	26
Former	38	18.3
Current	33	15.9
Tumor Site		
Larynx	42	20.2
Oropharynx	95	45.7
Oral	66	31.7
Other	5	2.4
Treatment		
Surgery +/- Radiation	100	48.1
Radiation +/- Chemotherapy	107	51.4
HPV +	75	36.1
	Mean	**Median**
Age at Diagnosis	61.63	60
Pack Years	40.15	40
PHQ-9 Score	6.06	5

Note: "Other" tumor site includes unknown primary, hypopharynx, nasal/sinus, and salivary gland

Table 2. T and N Classification

T/N Classification	N0	N1	N2	N3	Total
Tx	0	0	1	0	1
T1	15	2	21	1	39
T2	20	9	23	0	52
T3	23	8	24	4	59
T4	27	9	20	1	57
Total	85	28	89	6	208

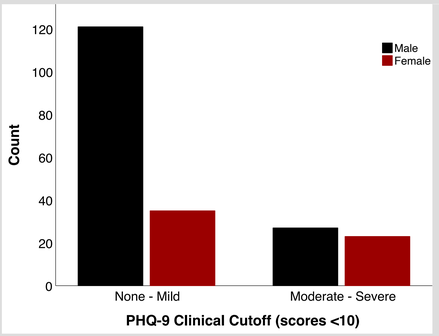
Table 3. Tumor Response

Treatment Response	N	%
Complete Response	144	69.2
Incomplete Response	64	30.8

Results

- Greater depressive symptomology was not associated with incomplete tumor response (odds ratio = 1.006, 95% confidence interval, .955-1.055; *P* = .885).
- HPV status was not significantly related to depressive symptoms (*P* >.05).
- Males reported lower rates of clinical depressive symptomology than females (Chi-square = 10.394, *P* = .001).

Figure 1. Depression Score by Gender



Conclusions

Depressive symptoms at initial consult did not predict tumor response, contradicting previous research. A post hoc analysis was conducted considering the relationship between HPV status and depressive symptoms, predicting HPV + patients to have less depressive symptomology. We predicted this since HPV + cancers are known to have improved treatment response[4]. We did not find these results to be significant. A control variable check showed male patients expressed significantly fewer depressive symptoms than females. Although females are twice as likely to be diagnosed with depression, males are four times as likely to die from suicide[5]. This brings into question the differences between how males and females manifest their symptoms and how social norms affect responsiveness. Future studies should examine how to accurately determine depressive symptomology between genders to appropriately determine the relationship between depressive symptoms and tumor response.

References

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