Factors Associated with of Quality of Life Decreases in Head and Neck Radiotherapy Patients

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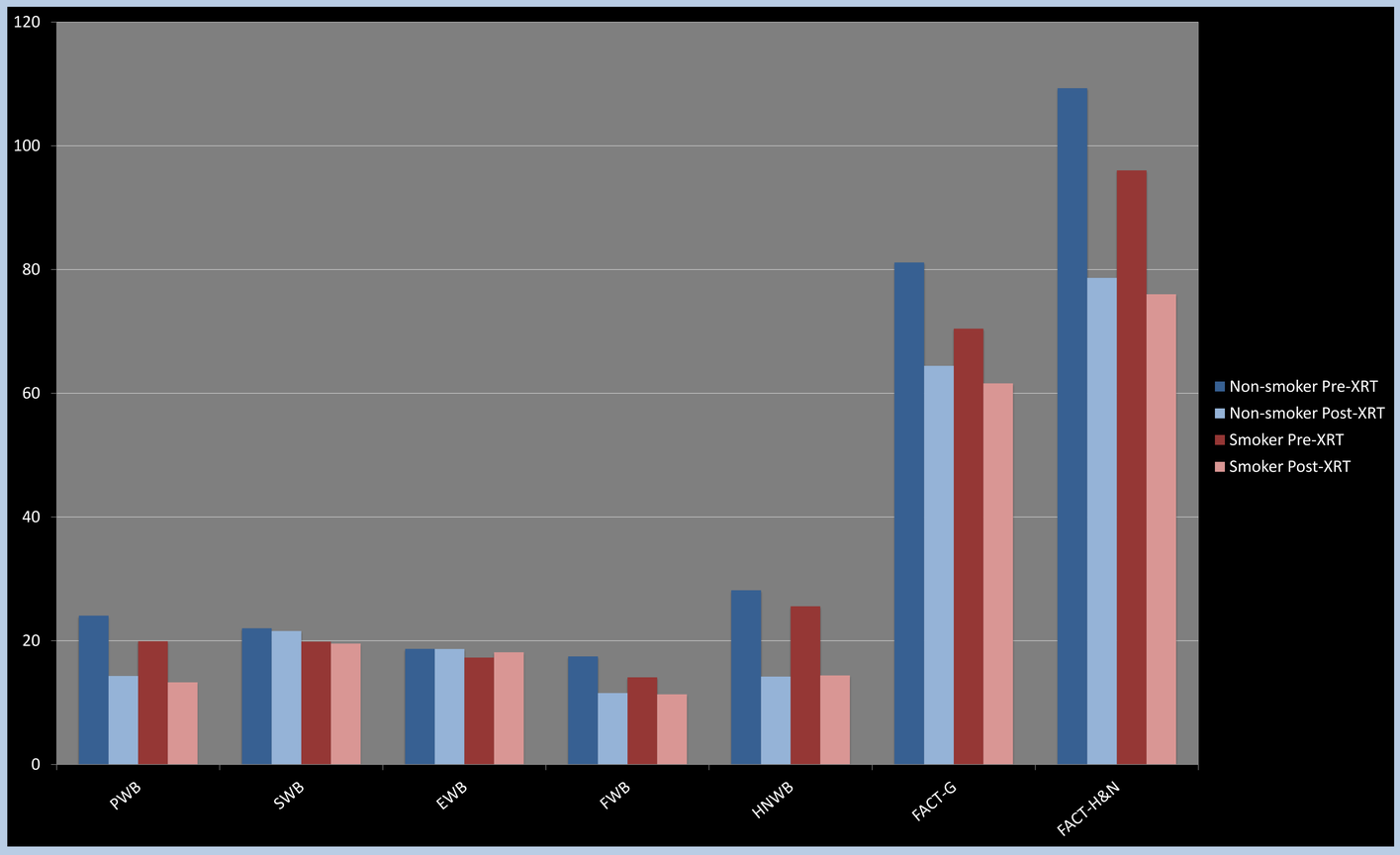
Purpose/Objectives:

Health related quality of life (QOL) is particularly important in the management of head and neck cancer (HNC) patients, where both the disease and the common treatment modalities are often debilitating. This study examined the main factors associated with QOL decreases in HNC radiotherapy (RT) patients.

Materials/Methods:

Eligible patients were treated with radiotherapy for HNC at OHSU between 2006 and 2008. Participants completed the Functional Assessment of Cancer Therapy - Head and Neck (FACT-H&N) pre- and post- treatment. Pre- and post-treatment scores were compared using the paired sample t-test and the effect of smoking status, surgical history, and chemotherapy on QOL was investigated using the independent sample t-test. Multivariate linear regression was used to evaluate the relationship between total dose, the mean dose to critical structures, and QOL.

Smokers vs. Non-smokers



Pre- vs. Post-Treatment Parameters for All-Comers

	Pre-Treatment	Post-Treatment	P-value
Physical Well-Being	22.7	14.1	.001
Social Well-Being	21.3	20.9	.419
Emotional Well-Being	18.2	18.4	.427
Functional Well-Being	16.6	11.5	.001
Head and Neck Well-Being	27.3	14.3	.001
FACT-G	77.4	63.0	.001
FACT-H&N	104.7	77.3	.001

Results: Of the 160 HNC patients for whom records were available, 83 (59.7%) completed both pre- and post-treatment FACT-H&N surveys. Seventy-nine (95.2%) were male and 4 (4.8%) were female. The average age was 62.0 years. Patients' QOL declined substantially over the course of treatment (104.7 to 77.3; $p<0.001$). This was mainly due to decreases in the physical (22.7 to 14.1; $p<0.001$), functional (16.6 to 11.5; $p<0.001$), and HNC specific subscales (27.3 to 14.3; $p<0.001$). The individual items with the greatest change were "I am able to eat as much food as I want" (2.58 to 0.57; $p<0.001$), "I am able to eat the foods that I like" (2.54 to 0.56; $p<0.001$), and "I can eat solid foods" (2.78 to 0.98; $p<0.001$). This decrease in QOL was independent of patients' surgical history, chemotherapy status, and RT modality. Non-smokers had a higher pre-treatment QOL scores compared to smokers (109.3 vs. 96.0, $p=0.01$), but suffered a greater decline post-treatment (10.6-point difference, $p=0.03$). Linear regression analysis found no association between global QOL decrease and total dose, mean parotid dose, mean laryngeal dose, and mean esophageal dose. Mean mandible dose, however, did correlate with global QOL decrease ($B=-0.6$ QOL points/Gy, $p<0.01$).

Conclusions: The lack of correlation between QOL score, total dose and the dose to critical structures may be because symptom and functional problems occur at radiation doses lower than those typically used to treat HNC. The correlation between mandible dose and global QOL decrease suggests that this structure may have a higher dose threshold for sequelae. While it is clear that HNC patients suffer significant treatment-related QOL decreases, identifying the main factors is difficult. Identifying the specific elements of QOL affected by RT may lead to better supportive care for HNC patients.