

CHANGES IN SENSITIVITY IN THE OROFACIAL AND CERVICAL REGION IN POST-TREATMENT FOR HEAD AND NECK CANCER - PRELIMINARY RESULTS

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Introduction

Subjective evaluations revealed that head and neck cancer (HNC) patients had altered orofacial and cervical somatosensory perception, including sensitivity to particular textures and temperatures impacting eating habits. It appears that there are less noticeable changes in tactile sensation as measured by texture discrimination and stereognosis ability. We evaluated the cervical and orofacial sensitivity of patients with head and neck cancer (HNC) who receive radiation therapy because there is a scarcity of scientific evidence on sensory changes in these individuals.

Methods

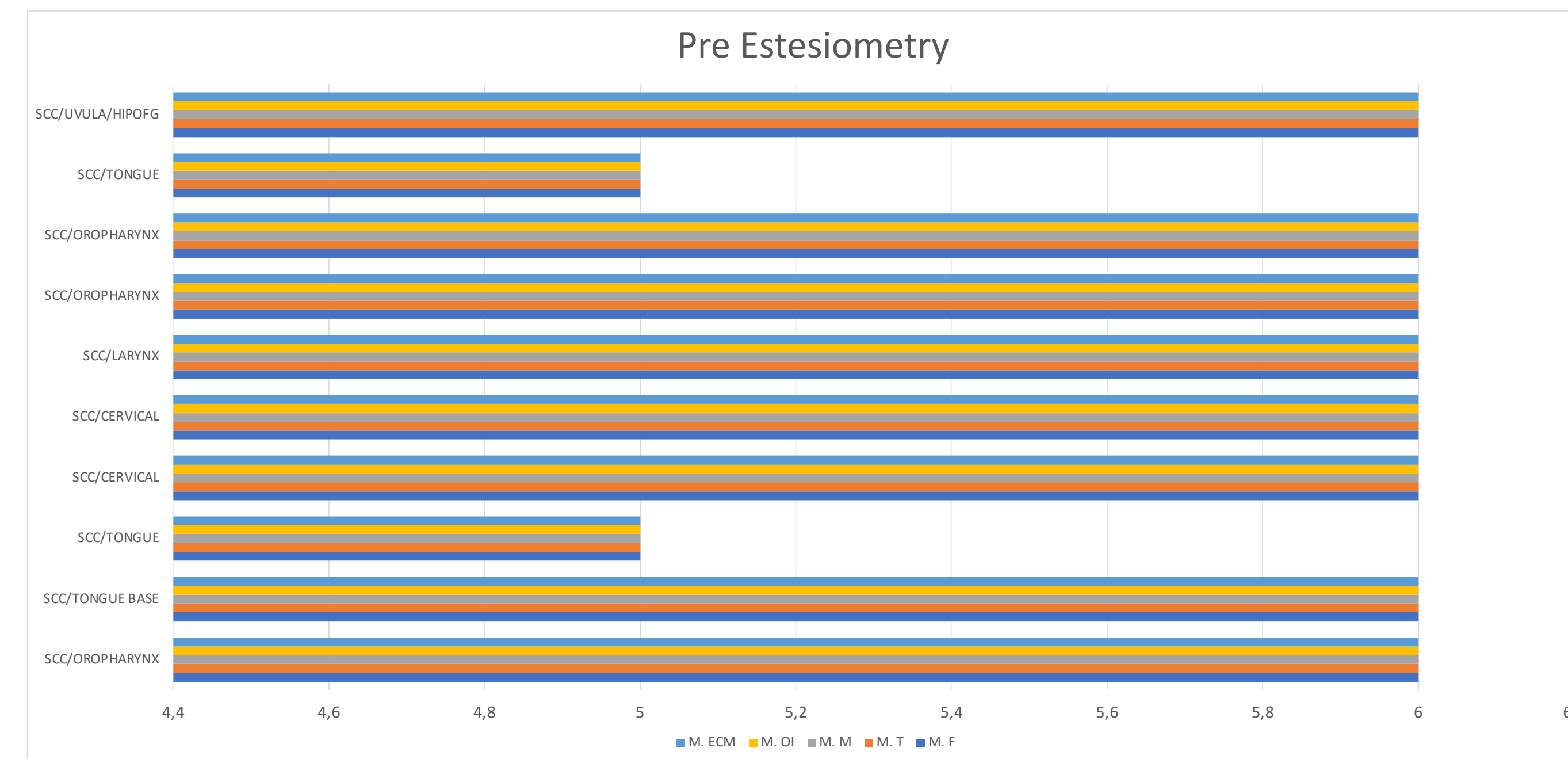
Physiotherapists evaluated ten patients with HNC who also got chemotherapy, both before and after their radiation treatments. The Esthesiometer (semmes-weinstein monofilaments) was used to measure the skin's sensitivity to forces delivered as stimuli to nerves that respond to pressure and smooth touch. The test was conducted with the lightest and punctual filaments, and the patient responded "yes" whenever he felt the filament's touch while he was still in the supine posture with his eyes blindfolded. Proceed to use the other kinds of filaments if no reaction was received. Individuals with cognitive abnormalities, mental illnesses, or neurological conditions were excluded.

Ref	Age	Sex	Type of Cancer	Radio		TMD	
				Type	How many sessions	Before	After
1	54	M	SCC/OROPHARYNX	IMRT	33	NOT	NOT
2	62	M	SCC/TONGUE BASE	IMRT	33	YES	YES
3	40	F	SCC/TONGUE	IMRT	33	NOT	YES
4	48	M	SCC/CERVICAL	IMRT	33	YES	YES
5	76	M	SCC/CERVICAL	IMRT	33	YES	YES
6	40	F	SCC/LARYNX	IMRT	33	NOT	NOT
7	64	M	SCC/OROPHARYNX	IMRT	35	NOT	YES
8	42	M	SCC/OROPHARYNX	IMRT	39	NOT	YES
9	67	M	SCC/TONGUE	IMRT	35	NOT	YES
10	67	M	SCC/UVULA/HIPOFG	IMRT	35	NOT	YES

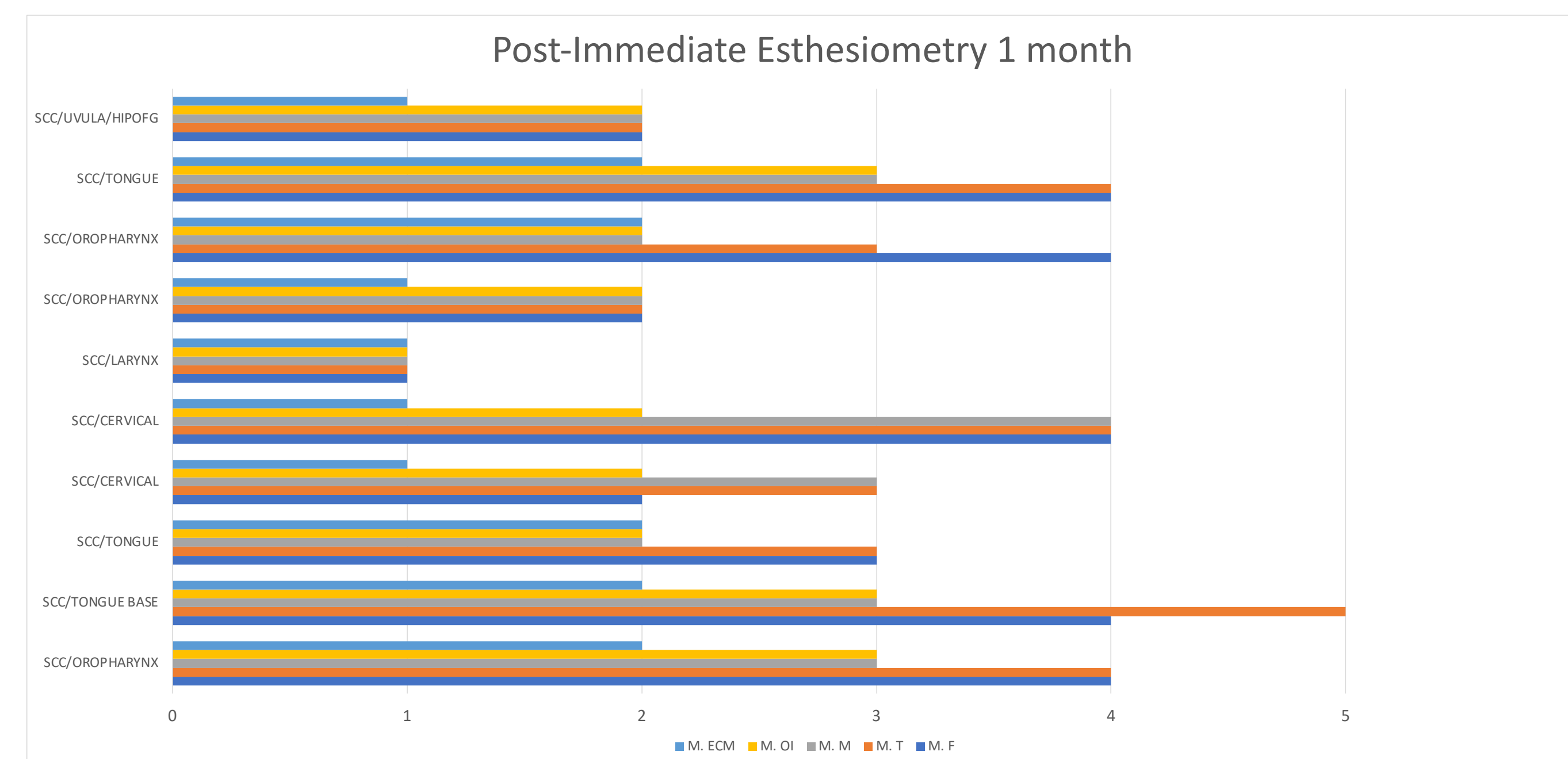
Table 1 Cancer types, radiation therapy patients' ages, sexes, and modifications

Reference:

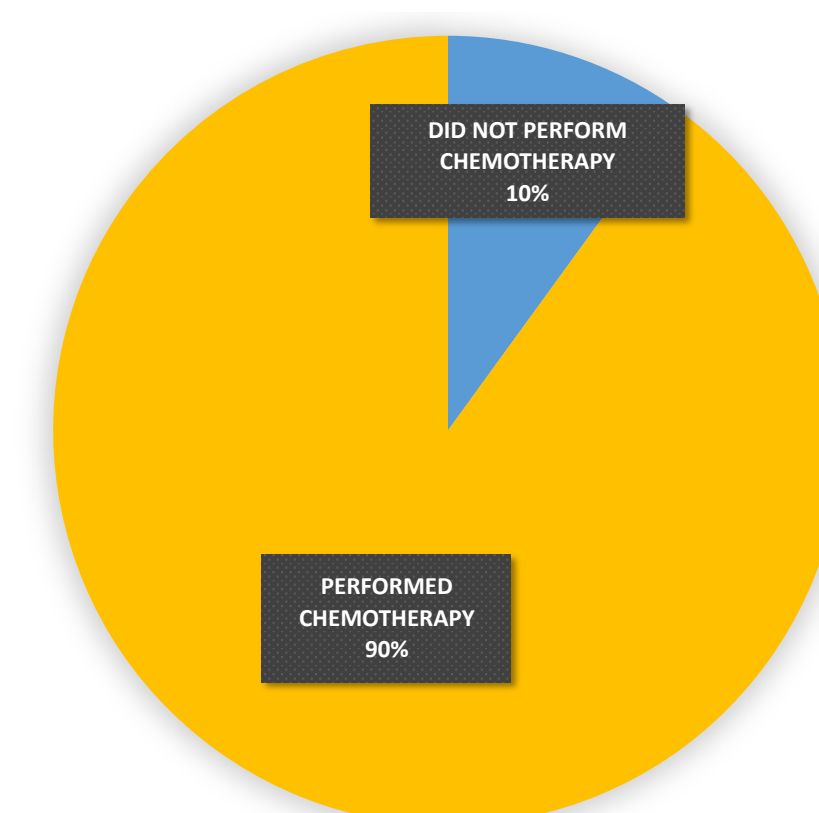
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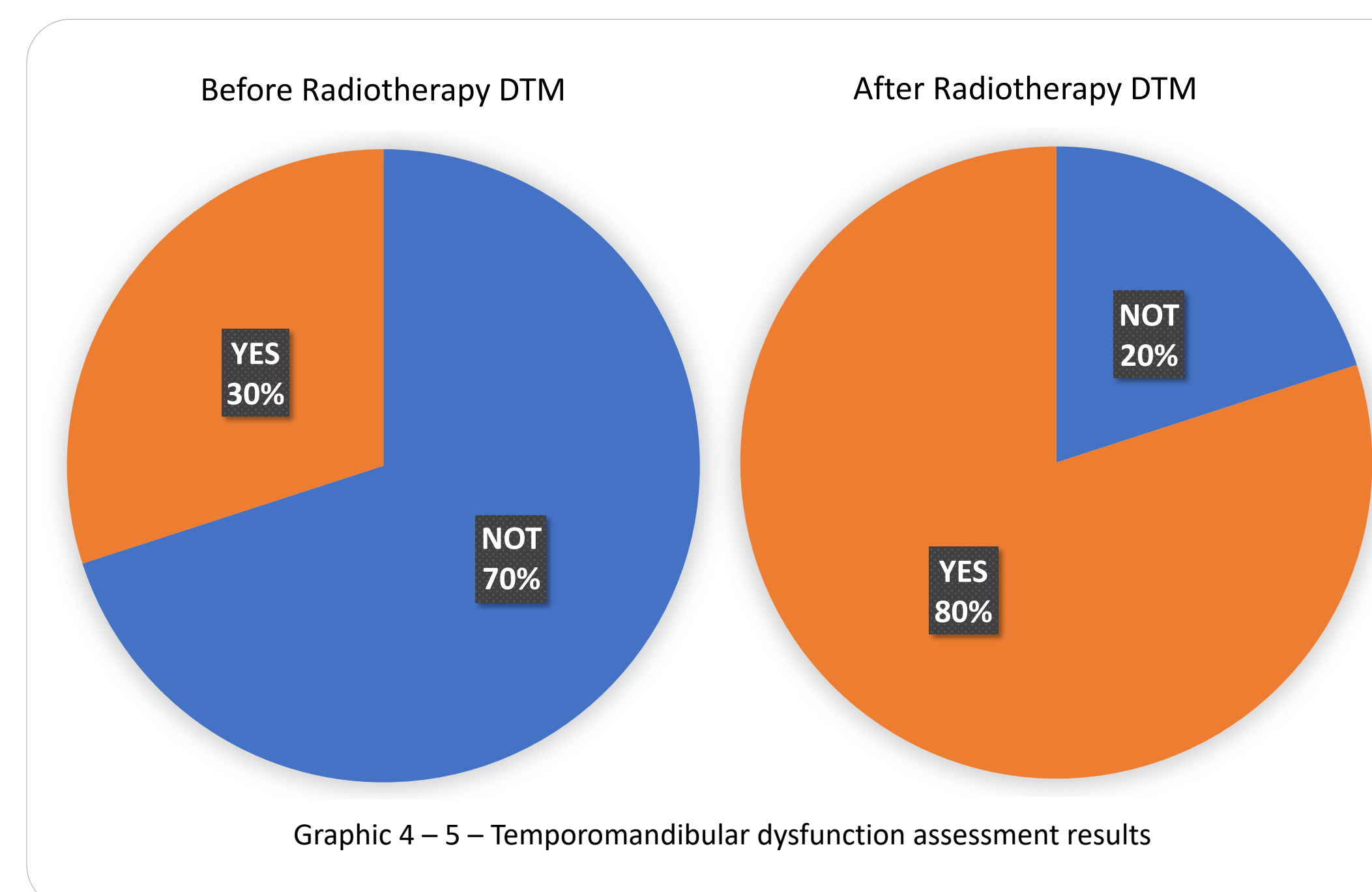
Graphic 1 - Change in sensitivity before radiotherapy



Graphic 2 - Change in sensitivity after radiotherapy



Graphic 3 – outcomes for individuals who underwent chemotherapy



Graphic 4 – 5 – Temporomandibular dysfunction assessment results

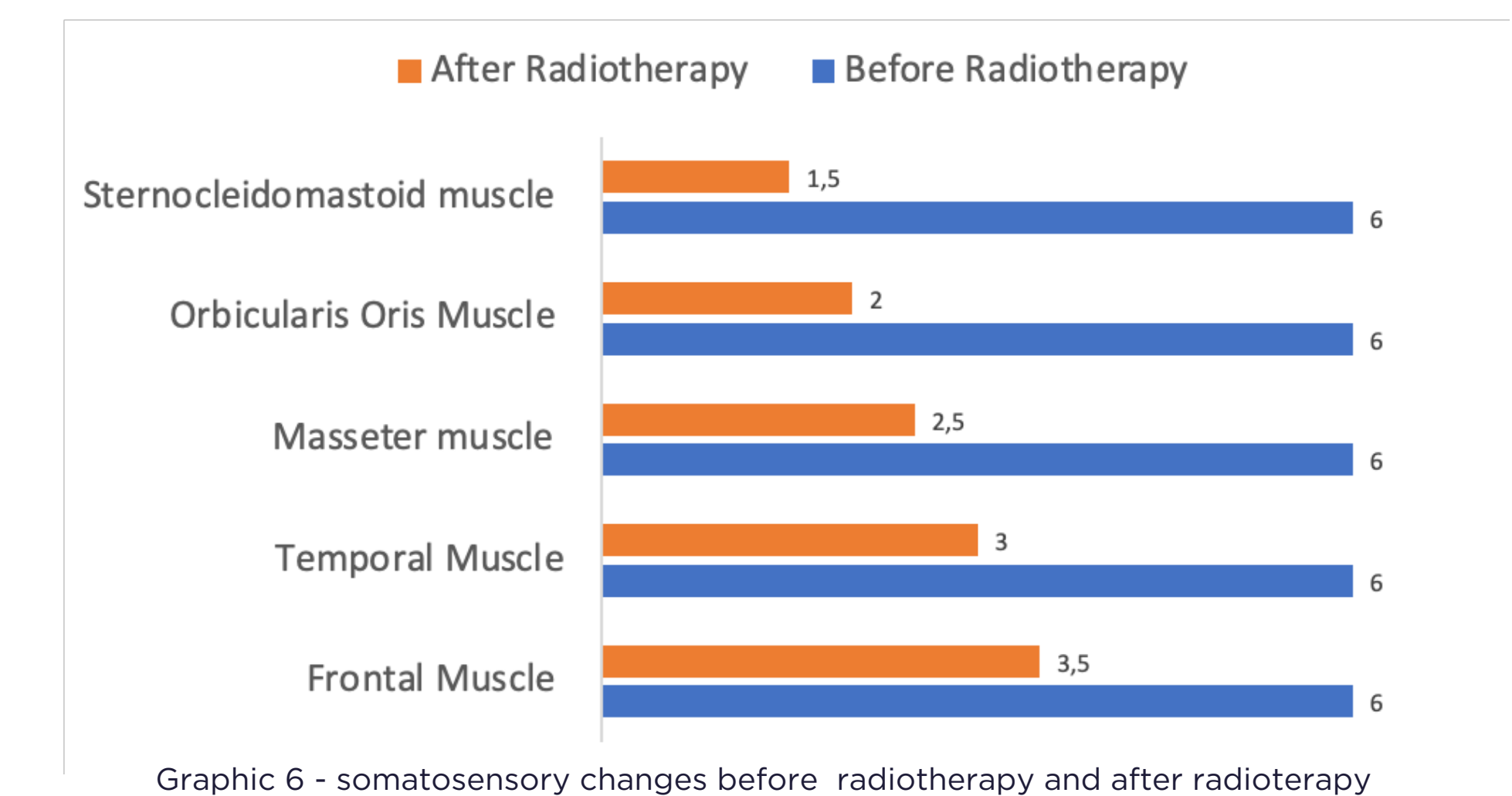
Results

This study involved 10 patients treated with radiotherapy for different types of head and neck cancer, with a mean age of 56 years (± 13 years). The most frequent cancers were: squamous cell carcinoma in the oropharynx and tongue, representing 30% each, followed by 20% in the cervical region and 10% in the larynx and uvula/hypopharynx, respectively (Graphic1). Half of the participants underwent surgery, while 90% underwent chemotherapy, mostly with cisplatin (40%) (Graphic4). All of them received IMRT, totaling an average of 34 sessions (± 2.07), and an average dose of 6702 Gy (± 642) (Table1).

The evaluation of the esthesiometric function revealed a significant reduction in post-radiotherapy tactile sensitivity in five muscle regions. Using the Wilcoxon test, a decrease in sensitivity was observed with p values ≤ 0.006 in all regions analyzed, signaling an altered perception of patients regarding the sensitivity threshold for the thinner tips of the esthesiometer. The reductions observed were:

- Frontal Muscle: p = 0.005
- Temporal Muscle: p = 0.006
- Masseter muscle: p = 0.005
- Orbicularis oris Muscle: p = 0.005
- Sternocleidomastoid muscle: p = 0.005

Before treatment, esthesiometric sensitivity was at the highest level (value 6) for all quartiles (25th, 50th and 75th), indicating excellent sensitivity (Graphic 1, 2 e 6). However, after radiotherapy, there was a significant decrease in sensitivity values, evidenced by a drop in percentile values, with the median being:



Graphic 6 - somatosensory changes before radiotherapy and after radiotherapy

These changes demonstrate remarkable worsening in patients' tactile sensitivity, corroborated by significant p-values (< 0.006), reinforcing the evidence of decreased tactile sensitivity after treatment.

Changes were observed in TMJ pre and post radiotherapy (Graphic 4,5).

Conclusion

For patients with HNC, radiation therapy result in notable somatosensory alterations in the orofacial and cervical regions. Changes in the cervical region can interfere with daily tasks such as eating, communicating, and other movements.