Patient Characteristics and Treatment Patterns in Patients with Head and Neck Squamous Cell Carcinoma Undergoing Chemoradiotherapy

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INTRODUCTION

Chemoradiotherapy (CRT) represents an important treatment option for patients with locally advanced head and neck squamous cell carcinoma (HNSCC), either as definite treatment or in the adjuvant setting.[1,2] Cisplatin is most frequently used in this context. For patients who are not candidates for cisplatin, alternative agents such as docetaxel may be considered.[3] Our study aims to identify factors influencing chemotherapy choice and compare side effect profiles between cisplatin and docetaxel in a representative real-world HNSCC population.

METHODS

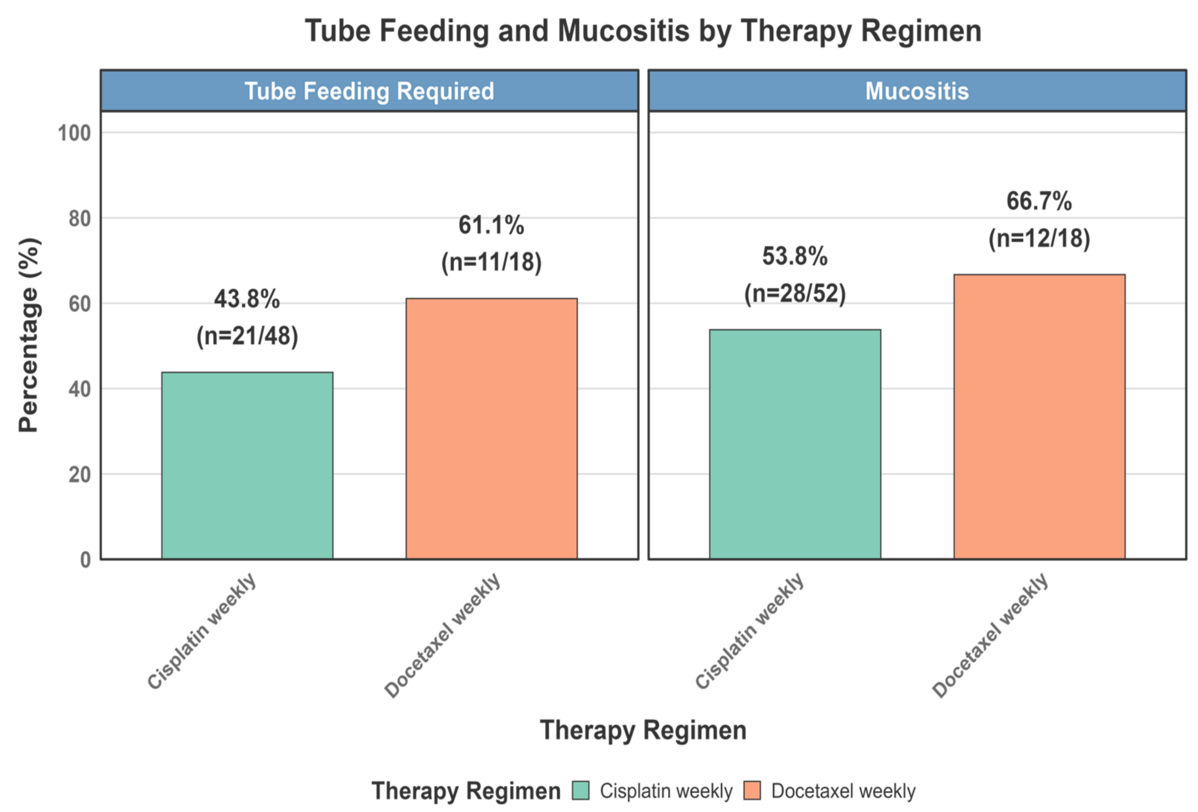
We included adult patients with HNSCC who had their first visit at the Department of Medical Oncology between November 1, 2022, and May 31, 2025. Eligible patients received either definitive or adjuvant CRT with weekly cisplatin (40 mg/m²) or docetaxel (15 mg/m²). All data originate from routine clinical workflows within the University Hospital. We used data and infrastructure from an ongoing registry (AO_2023-00091). Diagnoses of all patients are prospectively documented and coded within routine clinical workflows in a validated RedCap database.[4,5] Laboratory data were pulled from the existing clinical data warehouse. Statistical analyses were performed using R software.

Baseline variable	RT plus cisplatin (n=52)	RT plus docetaxel (n=18)	Total (n=70)
Age, years			
Median	63	71	64
Q1,Q3	58.00, 67.00	64.25, 75.75	58.25, 70.00
Sex, No. (%)			
Male	39 (75.0)	14 (77.8)	53 (75.7)
Female	13 (25.0)	4 (22.2)	17 (24.3)
Clinical situation, No. (%)			
First diagnosis	50 (98.0)	16 (88.9)	66 (95.7)
Relapse/Progression	1 (2.0)	2 (11.1)	3 (4.3)
Treatment, No. (%)			
Definitive RCT	48 (92.3)	14 (77.8)	62 (88.6)
Adjuvant RCT	4 (7.7)	4 (22.2)	8 (11.4)
ECOG, No. (%)			
ECOG 0	33 (63.5)	8 (44.4)	41 (58.6)
ECOG 1	17 (32.7)	6 (33.3)	23 (32.9)
ECOG 2	1 (1.9)	4 (22.2)	5 (7.1)
Missing	1 (1.9)	0	1 (1.4)
Charlsen Comorbidity Index			
Median	2.0	3.5	3.0
Q1,Q3	2.00, 4.00	3.00, 6.25	2.00, 4.00
missing	15	4	19
Polyneuropathy, No. (%)			
Yes	2 (3.8)	0	2 (2.9)
No	35 (67.3)	14 (77.8)	49 (70.0)
Missing	15 (28.8)	4 (22.2)	19 (27.1)
Hearing impairment, No. (%)			
Yes	6 (11.5)	8 (44.4)	14 (20.0)
No	31 (59.6)	6 (33.3)	37 (52.9)
Missing	15 (28.8)	4 (22.2)	19 (27.1)
Treatment duration, weeks			
Median (range)	5.10 (0.90-7.10)	4.25 (1.00-6.10)	5.00
Cumulative chemotherapy dose (mg)			
Median (range)	443.50 (160.40-966.50)	141.75 (45.60-225.90)	-
Creatinine (µmol/L) at baseline			
Median (range)	66.0 (31.0-119.0)	64.5 (40.0-99.0)	66.0 (31.0-119.0)
Estimated GFR (ml/min/1.73m²) at baseline			
Median (range)	96.5 (52.0-134.0)	92.5 (61.0-113.0)	(96.0 52.0-134.0)

Adverse events, grade 3 or higher, No. (%)			
Albumin	4 (7.7)	3 (16.7)	7 (10.0)
C-reactive protein	36 (69.2)	16 (88.9)	52 (74.3)
Estimated GFR	2 (3.8)	1 (5.6)	3 (4.3)
Creatinine	1 (1.9)	0	1 (1.4)
Hemoglobin	14 (26.9)	4 (22.3)	18 (25.7)
Absolute Neutrophils	13 (25.0)	0	13 (18.6)
Platelets	1 (1.9)	0	1 (1.4)

RESULTS

We included 70 patients with HNSCC; 52 patients were treated with cisplatin, 18 patients received docetaxel. Patients treated with docetaxel were older, had poorer performance status according to the ECOG scale, and a higher Charlson Comorbidity Index compared to those receiving cisplatin. Baseline estimated GFR values were similar between the two groups. The incidence of grade 3 or higher toxicities according to CTCAE varied by treatment regimen. While cisplatin was associated with greater hematologic toxicity, patients in the docetaxel group experienced more adverse events related to elevated CRP levels and decreased albumin.



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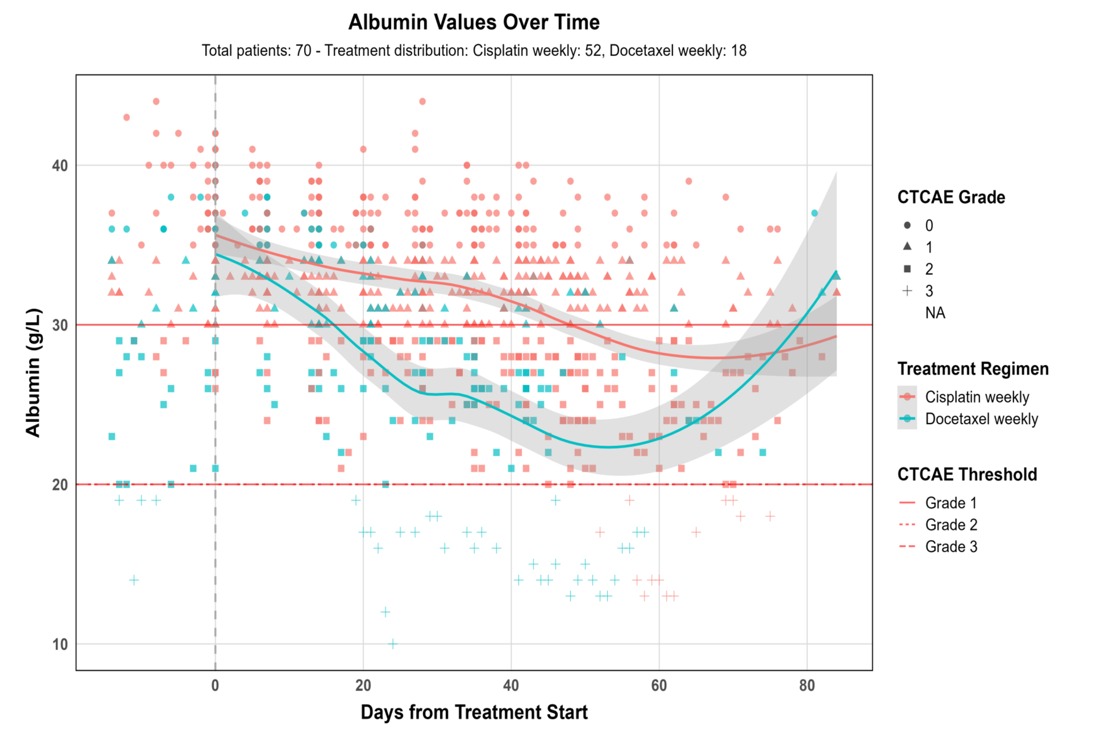

CONCLUSION

Our findings indicate that the decision to withhold cisplatin was not influenced by baseline kidney function, but by other factors such as patient age, performance status, and comorbidities. In the frailer docetaxel-treated patient population, adverse events more frequently affected albumin and CRP levels, potentially due to docetaxel's higher risk of causing mucositis.