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Cisplatin vs Carboplatin in Extrapulmonary Poorly Differentiated Neuroendocrine Carcinomas (PD NEC)

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BACKGROUND

Extrapulmonary PD NECs carry a poor prognosis. Some studies suggest cisplatin is more appropriate for younger patients due to its increased potency and nephrotoxicity compared to carboplatin, but randomized trials are lacking. We aim to determine whether there is a difference in outcomes for cisplatin vs carboplatin while adjusting for possible confounding factors.

METHODS

We identified PD NEC patients at Mayo Clinic between 2000-2022. Kaplan-Meier method determined overall survival (OS) and progression free survival (PFS). Disease control rate (DCR) was the percentage with complete/partial response or stable disease. Univariate analysis utilized a Cox proportional hazards model.

RESULTS

Thirty-four patients received cisplatin/etoposide and 33 patients received carboplatin/etoposide as first line therapy. Baseline characteristics are in Table 1. The median follow-up was 39.5 months (95% CI: 24.1-NR). The median PFS for the cisplatin group was 7.6 months (95% CI: 5.4-12.4) vs 4.1 months (95% CI: 2.8-6.6) for the carboplatin group (p value 0.04). The median OS for the cisplatin group was 17.3 months (95% CI 12.4-27.3) vs 11.6 months (95% CI: 9.1-26.5) in the carboplatin group (p value 0.17). DCR was 88% in the cisplatin group vs 63% in the carboplatin group (p value 0.0001). In univariate analysis, the differences in median OS and PFS were not statistically significant when accounting for age, creatinine, cell morphology, and male sex.

Table 1. Baseline Characteristics

	Cisplatin Group (n=34)	Carboplatin Group (n=33)	p value
Male, n (%)	21 (62%)	26 (79%)	0.13
Age, median (range)	59 (21-84)	66 (31-86)	0.01
Stage 3-4, n (%)	31 (91%)	33 (100%)	0.29
Site, n (%)			
Head & Neck	5 (15%)	2 (6%)	
Colorectal	10 (29%)	5 (15%)	
Other GI	6 (18%)	11 (33%)	
Unknown	4 (12%)	8 (24%)	
Pancreas	4 (12%)	6 (18%)	
Genitourinary	3 (9%)	1 (3%)	
Gynecologic	2 (6%)	0 (0%)	
Morphology, n (%)			
Large cell	7 (21%)	9 (27%)	
Small cell	12 (35%)	7 (21%)	
Nonspecified	15 (44%)	17 (52%)	
Ki67, median (range)	84 (30-99)	70 (35-90)	0.18
Creatinine, median (range)	0.9 (0.6-1.8)	0.9 (0.58-2.2)	0.44

CONCLUSIONS

In this study, cisplatin was associated with a favorable DCR and PFS. There was no statistically significant difference in OS between groups, though the median OS for cisplatin was longer by almost 6 months. While PFS for cisplatin was superior, this did not persist when adjusting for other factors. Cisplatin might be favored over carboplatin for young, fit patients, but this study did not confirm a benefit in median OS.

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