C-41

Predictive Rates of Survival Based on Ki-67 and Chemotherapy Regimens in Patients with High Grade (HG) Neuroendocrine Tumors (NETs)

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BACKGROUND: High grade (HG) neuroendocrine tumors (NETs) are rare neoplasms with limited literature regarding their prognostic course. HG-NETs generally demonstrate aggressive behavior. We hypothesized that patients with HG-NETS with a Ki-67 labelling index of ≥55% will have a worse prognosis and sought to determine the role of platinum based chemotherapy, capecitabine/temozolomide (CAPTEM) or 5FU based chemotherapy.

METHODS: Records of patients with HG-NETs seen at our clinic between June 1, 2012 and June 1, 2017 were reviewed. Demographics, pathologic characteristics, and treatment data were collected. Survival from the date of first chemotherapy to either the date of death or end of study were analyzed. Subset analysis was performed based on Ki-67 (<55% or ≥55%).

RESULTS: Seventy-one patients were identified and 58 received chemotherapy. Median age of diagnosis was 57. The most common primary site was the pancreas (n=18, 25%), with the liver being the most common site of metastatic disease (n=55, 77%). Median Ki-67 was 60%. Median number of treatment modalities for those with a Ki-67 of <55% and 55% was 3 and 1, respectively.

Median survival by Ki-67 was 112 months for Ki-67<55% versus 12 months for Ki-67≥55% (Logrank test p = 0.0016). Kaplan-Meier 6-, 12-, and 24-month survival rates based on Ki-67 were 94%, 81%, and 72%, respectively when Ki-67<55% compared to 71%, 49%, and 39%, respectively when Ki-67≥55%. Kaplan-Meier 6-, 12-, and 24-month survival rates based on chemotherapy regimen are shown in the table.

CONCLUSION: Patients with Ki-67<55% lived significantly longer than those with Ki-67≥55%. These results are similar to the Nordic trial, further supporting the use of Ki-67 cut off of ≥55%. Interestingly, patients who received platinum sequenced with either 5-FU based regimens or CAPTEM had longer survival rates than platinum alone. Future prospective studies are needed to determine optimal treatment methods.

Table 1:
Survival based on type of chemotherapy (n=58) from date of 1st chemotherapy

Treatment	6-month	12-month	24-month
CAPTEM only (n=14)	92%	92%	74%
Platinum-based chemotherapy sequenced with CAPTEM (n=14)	85%	67%	45%
Platinum-based chemotherapy sequenced with 5FU-based chemotherapy (n=7)	86%	57%	57%
p-value=0.0254			