

## C-17

# Treatment Response and Clinical Outcomes of Neuroendocrine Neoplasms (NENs) Treated with Immune Checkpoint Inhibitors (ICIs): a Single Institution Experience

*Haley Hauser, Tiffany Le, Joanne F Chou, Olivia Heffernan, April DeMore, Selin Gonen, Marinela Capanu, Diane Reidy-Lagunes, Nitya Raj*  
Memorial Sloan Kettering Cancer Center, New York, NY

**BACKGROUND:** ICIs have antitumor activity in some solid tumors, however a role for ICI's in NEN treatment is uncertain. We analyzed response and outcomes of NENs, well differentiated neuroendocrine tumors (WDNET) and poorly differentiated neuroendocrine carcinomas (PDNEC), treated with ICIs at MSK during the past decade.

**METHODS:** Patients with NENs who received ICIs between 2010-2021 were identified. Demographics, clinical and pathology characteristics were recorded. PFS/OS were estimated using Kaplan-Meier methods. Analysis of next-generation sequencing (NGS) results from archival tumor tissue was performed.

**RESULTS:** 57 patients were identified (WDNET-16; PDNEC-41). All patients had heavily-treated metastatic disease (median number of prior systemic treatments, WDNET-4, PDNEC-2). Median time from diagnosis to ICI treatment was 41.5 months in WDNET, 8 months in PDNEC. WDNET response: 1 (6%) partial response (PR), 4 (25%) stable disease (SD), 10 (63%) progressive disease (PD). PDNEC response: 6 (15%) PR (5 microsatellite stable, 1 unknown), 3 (7%) SD, 32 (78%) PD. Median duration of ICI treatment: 2 months (range 0-27) in WDNET, 1 month (range 0-16) in PDNEC; median duration of treatment for the 7 responders was 11 months (range 2-27). While receiving ICIs, 3 PDNEC responders developed PD in an escape lesion (2 brain, 1 nodal) after response in all other disease sites and successfully continued ICI treatment post-RT of escape lesion. Six-month PFS was 20%[95%CI: 7%-55%] and 9.8%[95%CI: 4%-25%], OS 60%[95%CI: 40%-91%]

and 37%[95%CI: 25%-56%], respectively in WDNETs and PDNECs. NGS results were available in archival tumor tissue of 35 patients (61%); most common alterations were TP53 (20/26, 77%) and RB1 (14/26, 54%) in PDNEC versus ATM, SMAD4, CREBBP, and IRS2 (all 1/9, 11%) in WDNET.

**CONCLUSION:** We observed limited activity for ICI's in NEN treatment, primarily restricted to a subset of PDNEC. PFS/OS findings were consistent with historical data, reflecting the pathogenesis of distinct NEN subtypes.

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