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Prolonged Response to Dabrafenib/Trametinib in Metastatic Well-Differentiated Grade 3 Pancreatic Neuroendocrine Tumor (NET G3) with BRAF V600E Mutation

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BACKGROUND

Treatment of metastatic pancreatic neuroendocrine tumors (pancNETs), particularly well-differentiated grade 2 (G2) and grade 3 (G3), often presents a dilemma in choosing from multiple similarly efficacious therapies. Data on targeted therapies for specific molecular alterations in these tumor types is limited. This report presents BRAF-targeted therapy as a therapeutic option for metastatic pancNET G3. Studies regarding the prevalence of targetable alterations and efficacy of related treatments across gastroenteropancreatic neuroendocrine neoplasms (GEP-NENs) are also reviewed.

METHODS

This is a case report of a patient with well-differentiated G3 pancNET (Ki-67 index of 37%) metastatic to liver, lung, lymph node, and scalp (soft tissue) treated with dabrafenib/trametinib (D/T) in the presence of a BRAF V600E mutation detected in tumor tissue. A (non-systemic) literature review accompanies the case.

RESULTS

The patient in this case demonstrated a deep partial response with minimal side effects attributable to D/T. The patient experienced progression of disease after 17 months of treatment and proceeded to next-line therapy. The patient remains alive at the time of this report, over 21 months from the date of diagnosis. Available cohorts suggest a prevalence of BRAF V600E mutations in GEP-NENs to be between 5-15%. Other reported targetable alterations in GEP-NENs include *KRAS, ALK, BRCA1/2, ATM, NTRK, FGFR*, and *RET*.

CONCLUSIONS

Molecular testing for targetable alterations should be undertaken for all GEP-NENs, particularly in those grades of disease (G2 and G3). Identifying targetable alterations can provide extensive periods of disease control to add to the treatment armamentarium for these malignancies.

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