

## C9

### **Risk Factors for Sporadic Pancreatic Neuroendocrine Tumors (PNETs): A Single-Center Case Control Study**

**Thorvardur R. Halfdanarson\***<sup>†</sup>, William R. Bamlet<sup>‡</sup>, Timothy J. Hobday<sup>†</sup>, Robert R. McWilliams<sup>†</sup>,  
Gloria M. Petersen<sup>‡</sup>.

<sup>†</sup>Division of Medical Oncology and <sup>‡</sup>Health Sciences Research, Mayo Clinic College of Medicine,  
Rochester, Minnesota.

\* Current affiliation: University of Iowa Hospitals and Clinics and Iowa City VA Medical Center, Iowa  
City, Iowa.

**Background:** PNETs are uncommon and often indolent tumors. Little is known about risk factors for PNETs and their association with other cancers. We evaluated smoking, alcohol use, family history of PNET and other cancers, and personal history of diabetes as potential risk factors.

**Methods:** Patients with PNETs seen for the first time at the Mayo Clinic Rochester between 2000 and 2005 were evaluated. Primary care patients seen for a general medical evaluation served as controls and were frequency matched (4:1 ratio) to patients with PNETs. Patients and controls completed the same questionnaires at the time of their evaluation. A chi-square test was used for comparing categorical variables; continuous variables were compared using a two-sample t test.

**Results:** After excluding insulinoma, high-grade PNETs and cases with MEN 1, 178 patients were evaluated. 111 patients were matched to 420 controls. Mean age was 59.2 years, and 50.4% were males; the majority (96%) of patients were White. 90.4% of tumors were clinically nonfunctional. Personal smoking history was not associated with PNETs; however, environmental tobacco exposure appeared to be more common among cases than controls (98% vs. 57%,  $p < 0.001$ ). Alcohol use was less common among cases (36% vs. 86%,  $p < 0.001$ ). Cases were more likely than controls to report a family member with sarcoma ( $p = 0.001$ ), PNET ( $p = 0.033$ ), and cancer of unknown primary ( $p = 0.05$ ). There was no association with other cancers in family members. 22% of cases reported a history of diabetes compared with 7% of controls ( $p < 0.001$ ).

**Conclusion:** Patients with PNETs were more likely than controls to report a history of diabetes, to have environmental tobacco exposure and to have a family history of sarcoma, PNET and cancer of unknown primary.