

Incidence and Survival of Neuroendocrine Tumors in Lower Saxony: A Population-based Study

E Sirri¹, C Vohmann¹, J Kieschke¹

¹Epidemiologisches Krebsregister Niedersachsen (EKN) - Registerstelle -, Oldenburg

Background

Neuroendocrine tumors (NETs) are rare neoplasms (incidence: 1-5/100,000 person-years), which originate from neuroendocrine tissues, localized in different organ systems. An increasing incidence of NETs has been observed in many countries. NETs are more common in the gastrointestinal tract (GIT) and the bronchopulmonary system. Despite their identification more than a century ago, NETs remain a poorly understood disease, clear causative factors have not yet been delineated and classification of the disease has faced challenges. The latest WHO classification guideline (2010) takes into account biological behavior for the GIT in order to apply risk stratification. Prognostic factors for NETs include grading, topography, morphology and sex. In general, there is paucity of epidemiological data on NETs in Germany. This study describes the incidence rates of and the relative survival (RS) of NETs in Lower Saxony (LS).

Methods

Patients of all ages diagnosed from 2004-2013 with NETs (ICD-O-3 classification of all cancer sites with malignant morphology codes 8013, 8041-8045, 8150-8153, 8155-8157, 8240-8242, 8245-8249, and 8240/1), extracted from the database of the LS Cancer Registry were analyzed. For this study, composite carcinoids, medullary carcinoma and merkel cell carcinoma were excluded. Death certificate only cases were included in the incidence calculations but excluded in the survival computations. Incidence rates were estimated for NETs overall, by sex and by topography. For survival calculations, only patients with malignant NETs aged 15-99 years (n=12,570) were analyzed. The cohort approach was employed to derive 5-years RS by sex and by topography (gastrointestinal tract (ICD-O-3 C15-C26), separately for pancreas (C25), and lung (C34)).

Results

In LS a total of 13,574 patients were diagnosed with NETs in 2004-2013, 8,220 men (61%) and 5,354 women (39%). Median age at diagnosis was 67 years for men and 65 years for women. Almost 71% of NETs originated from the lung, 20% from GIT, and 5% were of unknown primary site. Overall, the age-adjusted (Europe) incidence rate was 15/100,000 (men) and 10/100,000 (women). After excluding NETs of the lung, the incidence was 3.9 and 3.3/100,000 for men and women. The incidence increased from 3.5 in 2004 to 4.9/100,000 in 2013 for men and almost doubled for women from 2.6 to 4.8/100,000.

The overall 5-year RS for NETs excluding lung was better for women compared to men (57.3% vs. 47.6%). The same pattern was observed for all NETs of the GIT (68.8% vs. 58.5%), as well as for NETs of the pancreas (53.8% vs. 45.1%). NETs of the lung showed the lowest 5-year RS (women: 14.7% vs. men: 8.4%).

Discussion

Our observation of an increasing incidence of NETs concurs with other studies. Subsequent analysis will consider the 2010 WHO-classification and more topographical subtypes, especially for NETs of the GIT. Results are expected to give some insights into why women survive better than men as shown in this study.

Keywords: Epidemiology of communicable diseases, Allergy, Cancer