

disrupt immune tolerance of the thyroid gland, resulting in autoantibody production. Because thyroid irAEs have been revealed to be a prognostic factor, these novel autoantibodies are candidate biomarkers for PD-1 pathway blockade therapy. **References:** 1. Yamauchi et al. Clinical Features of Nivolumab-Induced Thyroiditis: A Case Series Study. *Thyroid*. 2017; 27(7): 894–901. 2. Yamauchi et al. Incidence, features, and prognosis of immune-related adverse events involving the thyroid gland induced by nivolumab. *PLoS One*. 2019; 14(5): e0216954.

Neuroendocrinology and Pituitary NEUROENDOCRINE & PITUITARY PATHOLOGIES

Incidence Trends in Lung and Gastroenteropancreatic Neuroendocrine Neoplasms

Heba Alwan, MD, MSc¹, Stefano La Rosa, MD², Peter Kopp, MD³, Simon Germann, MSc¹, Manuela Maspoli-Conconi, MD⁴, Christine Sempoux, MD, PhD², Jean-Luc Bulliard, PhD¹.

¹Unisanté, Lausanne, Switzerland, ²Institute of Pathology, University Hospital and University of Lausanne (CHUV), Lausanne, Switzerland, ³Division of Endocrinology, Diabetology and Metabolism, University Hospital and University of Lausanne (CHUV), Lausanne, Switzerland, ⁴Neuchâtel and Jura Cancer Registry, Neuchâtel, Switzerland.

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Abstract

Introduction

The incidence of neuroendocrine neoplasms (NENs) seems to increase worldwide. However, long-term, population-based data that consider differentiation levels are sparse.

Objective

To evaluate the incidence trend of lung and gastroenteropancreatic (GEP) NENs according to the latest International Agency for Research on Cancer/World Health Organization classification over a 41-year time period in two Swiss regions.

Methods

All cases of lung and GEP NENs recorded in the Vaud and Neuchâtel Cancer Registries from 1976–2016 were included. NENs were stratified into well-differentiated neuroendocrine tumors (NETs) and poorly differentiated neuroendocrine carcinomas (NECs). Changes in annual age-standardized incidence rates were calculated for lung and GEP NETs and NECs by sex.

Results

There were 4141 patients diagnosed with NENs, of which 65% were men. The incidence of lung NETs did not reveal any statistically significant trend in men, but increased in women by 4.9%/year between 1976–2016. The incidence of lung NECs in men decreased significantly by 2.6%/year from 1985–2016 whereas the incidence of lung NECs in women increased significantly between 1976–1998 by 6%/year. For GEP NETs, a steady annual increase in incidence occurred between 1976–2016 with

a magnitude of 1.7% in men and 1.3% in women. No trend in incidence of GEP NECs was found for both sexes.

Conclusions

The incidence trends of lung NECs in men and women parallel changes in smoking prevalence in the population whereas causes of the increase in incidence of GEP NETs

are not fully understood. Our study supports the importance of evaluating the epidemiology of NENs by their differentiation level.

Thyroid

BENIGN THYROID DISEASE AND HEALTH DISPARITIES IN THYROID II

Long Working Hours Are Associated with Hypothyroidism: A Cross-Sectional Study with Population-Representative Data

Young Ki Lee, MD¹, Dong-eun Lee, MS², Yul Hwangbo, MD¹, You Jin Lee, MD, PhD¹, Eun Kyung Lee, MD, PhD¹.

¹National Cancer Center, Goyang-si, Korea, Republic of,

²Research Institute of National Cancer Center, Goyang-si, Korea, Republic of.

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Background: Studies have highlighted the adverse effects of long working hours on workers' health; however, the association of long working hours with thyroid function has not been studied. This study aimed to assess long working hours as a risk factor for thyroid dysfunction.

Methods: This cross-sectional study was based on data obtained from the Korea National Health and Nutrition Examination Survey conducted from 2013 to 2015. A total of 2,160 adults who worked 36–83 hours per week were included. Thyroid function was defined based on the population thyroid-stimulating hormone reference ranges, after excluding individuals with positive results for thyroid peroxidase antibody. The association between working hours and thyroid function was confirmed via multinomial logistic regression.

Results: Hypothyroidism was more prevalent among those with longer working hours (3.5% vs. 1.4% for 53–83 and 36–42 working hours per week, respectively). Individuals who worked longer hours had an increased odds for hypothyroidism (odds ratio 1.46, 95% confidence interval 1.12–1.90, per 10 hour increase in working hours per week), after adjustment for age, sex, body mass index, urine iodine concentration, smoking status, shift work, and socioeconomic characteristics such as occupation, income level, and educational attainment. The association between working hours and hypothyroidism was consistent in various subgroups stratified by sex or socioeconomic characteristics.

Conclusions: To our knowledge, this study is the first to show that long working hours are associated with hypothyroidism. Our findings suggest that appropriate monitoring and treatment of hypothyroidism are necessary among individuals who work long hours.

Cardiovascular Endocrinology

ENDOCRINE HYPERTENSION AND ALDOSTERONE EXCESS

Significance of Adrenal Vein Aldosterone Gradient in the Diagnosis of Unilateral Subtype of Primary Aldosteronism

Masatoshi Ogata, MD, Hironobu Umakoshi, MD, Ryuichi Sakamoto, MD, PhD, Yayoi Matsuda, MD, Maki Yokomoto-Umakoshi, MD, Hiromi Nagata, MD, Tazuru Fukumoto, MD, Yoshihiro Ogawa, MD, PhD. Kyushu University, Fukuoka, Japan.