Letter to the Editor

Incidence of retinal artery occlusion in Germany

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Dear Editor,

Retinal artery occlusion (RAO) is a rare and severe disease potentially causing blindness. New therapeutic options such as systemic lysis are being evaluated (Schrag et al. 2015). Subjects with retinal arteriolar emboli are at increased risk of stroke (Wong & Klein 2002; Hayreh 2011) and giant cell arteritis and need prompt diagnostic assessment and treatment. Literature on incidence is scarce, with one report of annual incidence of 1.3/100 000 subjects for central RAO available for the USA (Leavitt et al. 2011). There is no data yet available for Europe (Li et al. 2017), a research gap we fill herein.

Based on health claims data of the ‘AOK Baden-Wuerttemberg’ (AOK BW) from 2013 to 2017, a secondary data analysis was carried out under fulfillment of data protection laws. The ‘AOK BW’ insures more than 40 % (n = 4 104 201) of subjects living in Baden-Württemberg, Germany. The study is based on pseudonymized administrative claims data. Thus, no ethical approval was needed.

Medical individual-level data are collected quarterly for each year. The collected data cover demographic data, inpatient and outpatient diagnosis data, which are coded according to the International Classification of Diseases 10th revision German Modification (ICD-10 GM).

The study population for prevalence estimation was defined as all insured persons of the AOK BW. Prevalent cases were defined as those subjects with RAO codes (ICD-10 code H34.1-2) in 2014 and 2015, either in an outpatient setting by an ophthalmologist in one quarter of the year and confirmed in one of the following three quarters or coded at least once as inpatient.

All persons being continuously insured at the AOK BW from 01.01.2014 to 31.12.2017 were included in the incidence analysis. Those subjects with no RAO codes (ICD-10 code H34.1-2) in 2014 and 2015 were included in the analysis sample. Incident cases were defined corresponding to prevalent cases (outpatient diagnosis in two different quarters or one inpatient diagnosis) as outlined above. Stratification by type of RAO (central RAO: ICD-10 code H34.1; other RAO: ICD-10 code H34.2) was conducted. All analyses were performed with Structured Query Language (Oracle, Redwood Shores, CA, USA). Age and sex standardization according to the European standard population from 1976 was performed.

The crude prevalence in 2016 for central RAO was 12.5/100 000 person-years (py) and standardized prevalence 6.2/100 000 py, as well as 20.2/100 000 py and 11.7/100 000 py for other RAO, respectively. A total of 3 262 617 subjects were included in the incidence analysis. The crude incidence rate for central RAO was 5.8/100 000 py (standardized incidence rate: 2.7/100 000 py) and for other RAO 7.8/100 000 py (standardized incidence rate: 4.5/100 000 py). There is an increase with age: while under the age of 60 years, there is rarely any case of RAO, the incidence increases up to 57.0/100 000 py at the age of 80 to 84 years (Figure 1).

Using health claims data comes with several limitations including misclassification and under/over-reporting. We therefore only included outpatient data from ophthalmologists. In summary, we report incidence of RAO in Germany for the first time using health claims data and found it to be slightly higher than the data for the US (Leavitt et al. 2011).

Fig. 1. Incidence of retinal artery occlusion (ICD-10 H34.1-2) stratified by age. Data from the health insurance AOK Baden-Württemberg in Germany in 2016.

References


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