CORRESPONDENCE

The Frequency and Timing of Recurrent Stroke

An Analysis of Routine Health Insurance Data

by Dr. PH Jona T. Stahmeyer, B. Sc. Sarah Stubenrauch, Prof. Dr. phil. Siegfried Geyer, Prof. Dr. med. Karin Weissenborn, and Dr. rer. biol. hum. Sveja Eberhard in issue 42/2019

Supplementary Methodological and Clinical Aspects

Relapse and mortality rates were methodically evaluated on the basis of health insurance data, which—in contrast to purely register-based approaches—record individual courses even after inpatient treatment (1). As data from 2010/2011 were used, the frequency of recurrence over five years can be determined in an observation period up to December 2016. The definition that was used only records a relapse if the location is coded. However, as this is not revenue-relevant, it will not always take place and will lead to an underestimation. No differentiation is made for recurrence and mortality rates after a specific diagnosis, and the classification of I62 as a stroke is generally viewed critically.

The results here are not unexpected and are relatively unspecific. Significantly lower mortality is reported for patients treated in a stroke unit (SU). In 2017, however, the SU rate (OPS8–981.0/–1, 98b.*0/–1) differed between 19% (I60), 43% (I61), and 74% (I63) (2). Here, stratification after diagnosis as well as differentiation after intensive care stay (ICU, OPS8–980/98f) would also be interesting. Unfortunately, however, the influence of SU treatment on the frequency of recurrence is not reported.

Indicators of qualitative stroke treatment include the type of care in specialized wards (SU / ICU) and the rate of recanalization therapies (thrombolysis, thrombectomy), among others. Therefore, an analysis of these factors with respect to mortality and frequency of recurrence would be of particular interest to clinicians and care planners. Increases in the nationwide SU rate of ischemic strokes, from 53% and 74% in 2010–2017, as well as in the rates of thrombolysis (8.9% to 15.9%) and thrombectomy (0.8% to 5.8%) were seen (3, 4). Accordingly, we believe that an additional analysis of

the changes in early recurrence and mortality rates, for instance of 2010/2011 and 2015/2016, with a follow-up period up to December 2012 and December 2017, respectively, would have been significantly more meaningful. This can possibly serve as motivation for a follow-up analysis. DOI: 10.3238/arztebl.2020.0211a

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Conflict of interest statement

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In Reply

We thank the authors of correspondence for the advice and for suggesting further analyses. In addition to presenting the incidence and prevalence of stroke events, the aim of the study was to analyze the frequency of recurrence and mortality after a stroke incident (1). We agree with the authors that, in general, even

more detailed and stratified analyses are possible. In addition to intensive care stays (as mentioned), taking into consideration the effects of comorbidities would also be relevant. We welcome the advice and will take it into account in future analyses. In particular, comparing the quality of care and the clinical outcome over time seems particularly interesting. There are various

limitations associated with the use of routine data, which we discussed in detail. One is the definition used for recurrence, which is based on international studies but could lead to an underestimation of the frequency of recurrence. Further, no information on stroke severity or other clinical information is available in the billing data.

As part of a supplementary analysis, treatment in a stroke unit was added to the regression model for recurrence as outcome. This revealed that stroke unit treatment did not significantly affect the risk of recurrence (hazard ratio: 0.966; $p = 0.439$). Data also showed that the different types of stroke were treated with varying frequency in a stroke unit. While more than half (54.8%) of all patients with ischemic stroke (I63) were

treated in a stroke unit, the proportion was significantly lower for those with hemorrhagic strokes (I60: 10.8%; I61: 34.4%; I62: 7.8%) or unspecified strokes (I64: 18.6%).
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CLINICAL SNAPSHOT

Unusual Initial Manifestation of a Pancreatic Tumor

A 54-year-old man complained of pain and livid discoloration of the left big toe three weeks after a local anesthetic procedure. The routine laboratory parameters were normal. The left pedal pulses were not palpable. Duplex sonography revealed absence of flow in the pedal arteries. Angiography was performed with the crossover technique, without any immediate complication: the angiogram showed an unusual occlusion of all three arteries of the lower leg at the level of the ankle. An interdisciplinary discussion of the further management of the case was planned, but, before this could take place, the patient sustained an acute occlusion of the common iliac artery, which was then

- a) Angiogram revealing acute thrombotic occlusion of the left common iliac artery.
- b) Multiple intracranial hemorrhages after local fibrinolytic therapy, consistent with hemorrhagic metastases.

treated with catheter-assisted thrombectomy and local fibrinolysis in the leg. A few hours later, hemiparesis developed and CT scanning revealed multiple intracranial hemorrhages, consistent with hemorrhagic metastases, as well as a large pancreatic mass with hepatic metastases. The patient died a few weeks later.

Thromboembolism due to tumor-induced coagulopathy was first described by Armand Trousseau in 1865. The term “Trousseau syndrome” generally refers to venous thromboses in tumor patients, but, in this case, pathological thrombi formed in the arterial circulation. An as yet undiagnosed malignancy should enter into the differential diagnosis of any unusual arterial occlusion.

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