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Original Research

A comparison of secondary prevention practice in poststroke and coronary heart disease patients

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ABSTRACT

Objectives: It is evident that patients with atherosclerotic vascular disease (AVD) benefit from appropriate secondary prevention. In clinical reality, the secondary prevention in AVD patients other than those with coronary heart disease (CHD) is often overlooked. Therefore, we compared the adherence to secondary prevention principles between poststroke and CHD patients.

Study design: Descriptive (cross-sectional) study with prospective mortality follow-up.

Methods: We examined 1729 chronic patients with AVD (mean age 65.9 (±SD 9.6) years), 964 with CHD, and 765 poststroke (pooled data of Czech samples of EUROASPIRE III, IV, and the ESH stroke survey). The interview was performed 6–36 months after the coronary event/revascularization or the first ischemic stroke, while the mortality follow-up 5 years after this interview.

Results: Poststroke patients had a significantly higher risk of persistent smoking, blood pressure ≥140/90 mmHg and LDL ≥2.5 mmol/L than CHD patients [odds ratios adjusted for age, gender and survey were 1.63 (95% CI: 1.13–2.33), 1.38 (95% CI: 1.13–1.69) and 2.26 (95% CI: 1.84–2.78), respectively]. In contrast, poststroke patients showed a lower risk of inappropriate glucose control and hypertriglyceridemia [0.66 (95%CI: 0.54–0.82) and 0.74 (95%CI: 0.61–0.91), respectively]. The prescription rates of antiplatelets/anticoagulants, antihypertensives and statins were also significantly lower in poststroke than in CHD patients (89.4 vs 93.7, 85.9 vs 97.5, and 57.7 vs 89.8, respectively).

Mortality analysis was performed in a subsample of 815 subjects interviewed in 2006/07. The 5-year all-cause mortality rates were 25.8% and 13.3% in poststroke and coronary

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patients, respectively ($P = 0.0023$); the hazard ratio for stroke adjusted for major risk factors was 1.85 (95% CI: 1.31–2.63).

Conclusions: Compared to CHD patients, poststroke patients are strongly handicapped in terms of poor adherence to secondary prevention target, prescription of basic pharmacotherapies and mortality risk.

Introduction

The ultimate goal of treatment of patients with atherosclerotic vascular disease (AVD) is to reduce the case fatality, to reduce risk of recurrent cardiovascular event, to extend lifetime, and to improve life quality. Management of patients with coronary heart disease (CHD) was defined extensively by the series of Joint European Societies' Guidelines since 1994.[1–5] Since the third revision of these Guidelines,[3] also patients with AVD in non-coronary localisations (including those after ischemic stroke) have been included in the group with highest priority for prevention. To implement secondary prevention measures in poststroke patients in clinical practice, we should adopt similar principles as those applicable to CHD patients, i.e. strictly defined treatment targets for major cardiovascular risk factors, several 'mandatory' pharmacotherapies, and necessary lifestyle changes.

To describe clinical reality in secondary prevention of CHD with respect to adherence to these guidelines, the EUROASPIRE (European Action on Secondary Prevention by Intervention to Reduce Events) survey was conducted in 1995/96 (EUROASPIRE I),[6] to be subsequently repeated in 1999/2000, 2006/7 and in 2012/13 (i.e. EUROASPIRE II-IV, respectively).[7–9] Data from these surveys demonstrated a high prevalence of inadequately controlled modifiable risk factors and insufficient prescription of basic pharmacotherapies in the secondary prevention of CHD across all European countries included.

Comparable data regarding patients with cerebrovascular disease were virtually non-existent until the stroke-specific module was developed as a voluntary add-on to the EUROASPIRE III survey. The objective of this module was to identify the prevalence of CVD risk factors, lifestyle habits, and medication use among patients after their first ischemic stroke in order to describe the current status of clinical practice against the Third European Guidelines principles. This survey was performed in four European countries (five EUROASPIRE project centres) in 2007,[10] including the Czech Republic.[11] The Stroke Specific Module of the EUROASPIRE III study highlighted the need for structured disease management and targeted secondary prevention strategies. A second survey in patients with cerebrovascular disease (ESH Stroke Survey) was started in 2012 (and currently analyzed) under the nearly similar protocol[12] and in the same Czech centres as the EUROASPIRE III survey in 2007.

The aim of the present analysis is to demonstrate the differences in clinical practice in secondary prevention between poststroke and CHD patients and the corresponding mortality outcomes using data from EUROASPIRE III, IV and ESH stroke survey from 2006/07 and 2012–14.

Methods

Study population

The study population consists of Czech patients examined in the framework of well-defined surveys in patients with CHD or in patients after their first ischemic stroke. Patients with CHD represent pooled Czech samples of the EUROASPIRE III (2006/07) and IV (2013/14) surveys, while poststroke patients represent pooled Czech samples of the EUROASPIRE III-stroke survey (2006/07) and ESH stroke survey (2012/13); the selection and standard protocol of examination (nearly similar for all four surveys) have been described in detail elsewhere.[8–12] All four surveys were conducted in two centers in the Czech Republic: the University Hospital Pilsen and the Centre for Cardiovascular Prevention of Thomayer Hospital in Prague.

CHD patients[9] aged ≤80 years hospitalized for any of the following discharge diagnosis were retrospectively identified from hospital records: first coronary artery bypass graft (CABG), first percutaneous transluminal coronary angioplasty (PTCA), and acute myocardial infarction or ischemia. Recruitment of patients started with the most recent hospital record and proceeded backwards until the required sample of 600 subjects was achieved. The interview of patients was performed 6–36 months after the index event (coronary event or revascularization).

The poststroke patients were selected in the same manner.[11,12] A sample of at least 500 (at least 700 in the second survey) consecutive patients aged ≤80 years hospitalized for their first ischemic stroke was selected and the responders were interviewed.

Clinical examinations and biochemical measurements

Information on personal and demographic characteristics, personal and family history of CHD, lifestyle and self-reported pharmacotherapy were obtained at the interview. The following clinical examinations were performed: height and weight were measured in light indoor clothes without shoes using SECA 220 scales and measuring sticks (SECA GmbH & Co, Hamburg, Germany). Waist circumference was measured using a steel tape measure. Blood pressure (BP) was measured in the sitting position after at least 5 min rest on the right arm using a standard mercury sphygmomanometer and appropriate cuff. Generally, blood pressure value reported in this

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