Chronic subdural hematoma epidemiology

As the world population becomes progressively older, the increasing incidence of chronic subdural hematoma (CSDH) will be a burden to patients and a future challenge for neurosurgical clinics [1].

The incidence of chronic subdural hematoma (CSDH) ranges from 1.72 to 20.6 per 100,000 persons per year [2].

CSDH is projected to become the most common cranial neurosurgical condition among adults by the year 2030 [3].

A steady increase in the incidence of CSDH has been also observed in developing countries due to the rise in life expectancy [4].

CSDHs occurred more frequently on the left side. The anatomical asymmetry of the cranium influences the left predilection of CSDH [5].

Greater prevalence of intracranial arachnoid cyst in patients with CSDHs has been reported in the literature [6].

At the time of diagnosis, many patients (~9%) may have a superimposed component of acute subdural blood intermixed with the chronic components and a history of recent trauma. In these cases, it is important to differentiate the process from a hyperacute subdural hematoma (SDH) or an acute SDH in a patient who is anticoagulated, as the isolated acute traumatic SDH represents a different pathology altogether [7] [8] [9].

Age

see Chronic Subdural Hematoma in Elderly

Gender

Men are more commonly affected than women. Several theories about male predominance could not enough to explain the reason for male predominance on CSDH.

Size and asymmetry of the cranium may be a risk factor of CSDH. Gender differences in the anatomy of cranium may contributepathogenesis of CSDH [10].

Denmark

Danish patient registers are a useful resource for SDH studies. However, choice of International Classification of Diseases code markedly influences diagnostic validity. Distinction between cSDH and

aSDH is not possible based on SDH diagnosis codes only [11].

Finland

A retrospective study was conducted of all adult patients (≥ 18 years and residents of Pirkanmaa Finland with a diagnosis of chronic subdural hematoma (CSDH) between 1990 and 2015. The cases were identified using ICD codes. Detailed data collection was performed using medical records and death certificates. All patients were monitored until death or the end of year 2017. The annual number of inhabitants in the Pirkanmaa region was obtained from Statistics Finland (Helsinki, Finland).

A total of 1168 patients with CSDH were identified from hospital records and death certificates; patients were considered as new-incidence cases if 2 years had elapsed following primary treatment and in cases involving a new contralateral CSDH. From 1990 to 2015, the overall incidence of CSDH doubled from 8.2 to 17.6/100,000/year. Among adults younger than 70 years, the incidence remained quite stable, whereas the incidence clearly increased among the ≥ 80-year-old population, from 46.9 to 129.5/100,000/year. The median age for a CSDH diagnosis increased from 73 to 79 years during the 26-year period. Head trauma was documented in 59% of cases. A ground-level fall was related to the CSDH in 31% of patients younger than 60 years and in 54% of those 80 years or older. The proportion of alcohol-related cases decreased toward the end of the study period (1990-1995: 16% and 2011-2015: 7%), because alcohol abuse was less frequent among the growing group of elderly patients. In contrast, the percentage of patients receiving anticoagulant or antiplatelet medication almost doubled toward 2015 (1990-1995, 27%; and 2011-2015, 49%). The patients' neurological condition on admission, based on both Glasgow Coma Scale score (score < 13: 1990-1995, 18%; and 2011-2015, 7%; $p < 0.001$) and the modified Rankin Scale score (score 0-2: 1990-1995, 8%; and 2011-2015, 19%; $p < 0.001$), was better in recent years than in the early 1990s. [12].

During the seven year period 1967-1973 a total of 64 residents of the City of Helsinki were diagnosed as having chronic subdural haematomas. Forty of the patients were diagnosed during life at the Departments of Neurology and Neurosurgery, University of Helsinki, and treated surgically. Twenty four were diagnosed at autopsy at the Department of Forensic Medicine, University of Helsinki, at which the autopsies in virtually all cases of subdural haematoma in Helsinki are performed. The total of 64 cases gives an incidence of 1.72/100,000/year in the average population, the incidence increasing steeply with advancing age up to 7.35/100,000/year in the age groups 70-79 years [13].

Japan

In a study, using data of the Miyagi Traumatic Head Injury Registry Project.

From January 2005 to December 2007, 1,445 patients with CSDH were registered in the project (M:F=1,021:424, mean age 71.2±12.8 y.o.). Using these patient's records, the incidence of CSDH was investigated, as well as causes of head injury, severity, and outcome.

The overall incidence of CSDH was 20.6/100,000/year, with 76.5 in the age group of 70-79 y.o. and

127.1 in the over 80 y.o. group. Ground level fall was the most frequent cause of trauma in the elderly, in contrast to traffic accident, which was the most frequent cause in the younger generation. Compared to the younger generation, neurological condition was severer in the elderly at the time of admission, and the outcome was poorer at the time of discharge.

Compared to previous reports, this study demonstrates a marked increase in the incidence of CSDH. Not only population aging but also current medical trends (such as increases of the elderly patients who receive hemodialysis, anticoagulant, and/or antiplatelet therapy) may influence the increase of CSDH incidence [14].

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