Traumatic head injuries and the risk of dementia-A 40-year retrospective nationwide study

Aim

The overall aim of the present project is to investigate risk factors for dementia in the total Swedish population, with focus on traumatic brain injuries (TBIs).

Background

Dementia is a major public health concern currently affecting an estimated 35.6 million people worldwide.[1] With the increasing number of elderly individuals, the disability and cost associated with dementia are expected to rapidly increase in the next 40 years, affecting more than 115 million people by 2050.[1]

The identification of generally applicable risk factors for dementia would be important for several reasons. First, it might aid in the construction of preventive measures for the general population. Second, it could increase understanding of the mechanism underlying this complex group of syndromes. In a recent study we evaluated risk factors for young-onset dementia (YOD) in a nationwide cohort, and found nine independent risk factors were identified that accounted for most cases of YOD in men.[2]These risk factors were multiplicative, most were potentially changeable and could be tracked to adolescence, suggesting good opportunities for prevention. In another study, we found strong associations between YOD of non-AD forms and TBIs of different severity. These associations were, however, markedly attenuated after multivariate adjustment.[3]The major limitation of these studies are that the studied cohorts consisted only of men.

Methods

The individuals considered for inclusion in the present study include all men and women at least 50 years of age, living in Sweden December 31, 2005. This cohort will be collected through the statistics Sweden (SCB). In this cohort we will track all individuals with a diagnosis of Alzheimer's dementia, vascular dementia, or dementia NUD through the national patient register, administered by the National Board of Health and Welfare. Each of these cases will be matched towards five control from the total Swedish population based on year of birth and sex. Previous TBIs will be tracked retrospectively in both cases and controls until 1970 with focus on temporal perspectives. Examples of other covariates of interest include cardiovascular disease, cerebrovascular disease, depression, substance abuse and socio-

economic factors, such as highest education. This study was approved by the regional ethics board in Umeå (DNR, 2013-304-32) and by the National Board of Health and Welfare in Sweden.

Economic plan

Cost for data acquisition from SCB and the National Board of Health and Welfare. **140 000 SEK including VAT.**

Money applied for with this application: 140 000 SEK.

References

1. International WHOaAsD. Dementia: a public health priority 2012.
2. Nordstrom P, Nordstrom A, Eriksson M, Wahlund LO, Gustafson Y. Risk factors in late adolescence for young-onset dementia in men: a nationwide cohort study. JAMA Internal Medicine 2013;173:1612-8.
3. Nordstrom P, Michaelsson K, Gustafson Y, Nordstrom A. Traumatic brain injury and young onset dementia: a nationwide cohort study. Ann Neurol 2014;75:374-81.