

Premature mortality in people with epilepsy in rural China

¹D Ding, ²WZ Wang, ²JZ Wu, ³GY Ma, ⁴XY Dai, ⁵B Yang, ⁶TP Wang, ⁷CL Yuan, ¹Z Hong, ⁸HM de Boer, ⁹L Prilipko, ¹⁰JW Sander

¹Department of Biostatistics and Epidemiology, Institute of Neurology, Fudan University, WHO Collaborating Center for Research and Training in Neurosciences, Shanghai; ²Department of Neuroepidemiology, Beijing Neurosurgical Institute, Beijing; ³Universal Love Hospital, Mudanjiang, Heilongjiang Province; ⁴Ningxia Medical College, Ningxia Hui Autonomous Region, China; ⁵Jiaozuo People's Hospital, Henan Province; ⁶Zezhou County Hospital, Shanxi Province; ⁷Department of Neurology, Yangzhou Medical College, Jiangsu Province, China; ⁸ILAE/IBE/WHO Global Campaign Against Epilepsy, Stichting Epilepsie Instellingen Nederland (SEIN), WHO Collaborating Centre for Research, Training and Treatment of Epilepsy, Netherlands; ⁹Department of Mental Health and Substance Abuse, World Health Organization, Geneva, Switzerland; ¹⁰Department of Clinical and Experimental Epilepsy, UCL Institute of Neurology, Queen Square, London, UK

Background and Objective: Mortality in epilepsy is assessed by means of particular parameters: the mortality rate, the proportional mortality rate (PMR), and the standardized mortality ratio (SMR). However, the mortality rate is not an appropriate measurement which can accurately reflect the severity of epilepsy. In China, few studies have described the annual mortality associated with epilepsy in a general population and these have provided a range of 3 to 7.9 deaths per 100,000 people. No previous study has provided the proportional mortality rate (PMR) or standardized mortality ratio (SMR) in patients with epilepsy in China.

Methods: The target population was patients who were managed by the demonstration project of "Epilepsy Management at a Primary Health Level", which was carried out under the auspices of the WHO/ILAE/IBE Global Campaign Against Epilepsy in rural China (2002-2004). Neurologists using strict criteria confirmed the diagnosis in all participants who were then treated with phenobarbital. Demographic data and putative cause of death were recorded for each person whose death was reported. We calculated the PMRs for each cause of death in the epilepsy population, and compared this to that in Chinese population 2004. The SMR, which is the ratio of observed number of death in the target epilepsy population to that expected, were calculated based on age and sex-specific mortality rates in China population 2004.

Results: There were 35 deaths among 2,455 people with epilepsy during the follow-up period; therefore, the case fatality rate was 1.4% in this treated cohort. The main cause of death was accidental or as a result of injury (self-inflicted or otherwise) as 13 (37%) patients died of drowning (6 cases), suicide (4 cases), poisoning (2 cases) and road traffic accident (1 case). In 11 (31.5%) patients death was attributed to hemorrhagic or ischemic stroke, whereas in 2 (5.7%) it was attributed to pneumonia. The age-adjusted PMRs due to injury (29.8%), stroke (29.8%), pneumonia (4.7%), and myocardial infarction (6.1%) were higher than those of the Chinese population in 2004, which were 8.1%, 19.1%, 1.5%, and 3.3%, respectively. The adjusted PMR due to neoplasm (15.1%) was lower than that of the general population. In one case (2.9%), death was attributed to SUDEP after a negative post mortem examination. In 3 cases (8.6%), the cause of death was not attributed due to lack of information. The SMR for people with epilepsy was 3.9 (95% CI: 3.8 to 3.9). It was higher in females (4.1, 95% CI: 3.9 to 4.4) than in males (3.5, 95% CI: 3.4 to 3.6). SMRs were particularly high in the 15 to 19, 20 to 24, and 25 to 29 year age-groups (23.3 [95% CI: 15.9 to 43.9], 40.2 [95% CI: 32.4 to 52.8], and 33.3 [95% CI: 28.0 to 41.1], respectively).

Conclusions: Overall, people with epilepsy had a 3 to 4 fold higher rate of death than the general Chinese population. The risk of premature death in young people with epilepsy in China is, however, much higher than previously reported. Injury, stroke, myocardial infarction, and pneumonia are among the leading putative causes of death in patients with epilepsy in rural China.

References

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