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Clinical features and prognosis of epilepsy in the elderly in western China

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ABSTRACT

Purpose: To investigate the characteristics and prognosis of epilepsy amongst older people hospitalized in southwestern China with newly diagnosed epilepsy.
Methods: We prospectively enrolled people older than 65 years who were admitted to a tertiary epilepsy center in West China between January 2008 and January 2013. Participants were divided into early-onset group (those who had a first seizure before age of 65) and late-onset group (those in whom the first seizure occurred after age of 65). Clinical data were collected and all participants were followed for two years.
Results: Of 340 people enrolled, focal seizure (84%) was the most frequent seizure type. Status epilepticus (64.4% vs. 46.7%, $p = 0.022$) and structural epilepsy (59.3% vs. 40.0%, $p = 0.015$) were more prevalent in late-onset group than early-onset group. Ischemic stroke was the leading putative cause (22.6%) in elderly epilepsies. Around 80% were given anti-epileptic drugs (AEDs) for treatment. Forty-two people did not complete the study, of whom 26 were lost to follow-up and 16 died for causes other than epilepsy. Of the 298 who completed the follow-up, 240 (80.5%) achieved significant seizure reduction. Logistic regression analysis indicated that late-onset epilepsies and AEDs treatment were associated with more favorable seizure outcome at two-year follow-up (OR = 4.029 and 92.007, respectively). The number of AEDs intake exerted no significant impact on seizure outcome.
Conclusions: In older people, late-onset epilepsies differed in several aspects from early-onset epilepsies. The overall effectiveness of AEDs treatment in older people was satisfactory.

1. Introduction

The proportion of people over the age of 65 years is rapidly growing globally. The incidence of epilepsy is relatively high in older people and clearly increases with age [1]. In this age group, seizure semiology, etiologies and treatment responses may be different from those in the younger [2]. It has also been reported that there might be differences between early onset and late-onset epilepsies in this group.

There are only few reports of epilepsy amongst older people from resource-poor areas of China. In this study, we ascertained the characteristics of epilepsy in older people and looked into possible clinical differences between late-onset and early-onset in the southwestern China.

2. Materials and methods

2.1. Study design

We conducted a prospective study at a large tertiary care epilepsy center in the southwestern region of China between January 2008 and January 2013. The center catchment area covers several regions, such as Sichuan, Yunnan, Guizhou, Chongqing and Tibet Province.

Consecutive patients who were diagnosed of epilepsy after age of 65 or above and untreated before were included. Elderly patients

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with established and treated epilepsy before age of 65 while presented uncontrolled epilepsies in their elderly life were not included. Epilepsy is defined as at least two unprovoked seizures occurring more than 24 h apart. Those with a single unprovoked seizure or acute symptomatic seizures were excluded [3]. The diagnosis was clinical and supplemented by electroencephalography (EEG). Participants were divided into the early-onset group (those with a first seizure before the age of 65 years but had never been diagnosed or treated) and the late-onset group (those with first seizure after the age of 65 years).

2.2. Clinical data collection

Data collected included gender, age at admission, age at the seizure onset and disease duration. Results of EEG and MRI/CT scans were reviewed and recorded. Local or generalized slow waves in the EEG recording were considered as non-specific abnormalities, while local or generalized paroxysms sharp waves, spike waves, sharp and slow waves, spike and slow waves were teemed as epileptiform discharges. Comorbidity, defined as co-occurrence of two or more separate medical conditions in the same person, was recorded. Information of anti-epileptic drugs (AEDs) and concomitant drugs with epileptogenic potentials a previously suggested [4] were also collected.

Epileptic seizures were classified as focal or generalized seizures [5]. Status epilepticus (SE) was defined as any clinical or electrophysiological epileptic activity that lasted for more than 5 min or recurrent epileptic activity without recovery of the consciousness over 5 min [6]. The etiology of epilepsy was classified as genetic, structural, metabolic, immune, infectious or unknown [7]. The potential causes were further classified into different categories as suggested in international guidelines [3,5].

2.3. Follow-up

All enrolled people were followed up as outpatient visit or by telephone interview for two years. Seizure-free or more than 50% reduction in seizure frequency was considered as AEDs effective, while less than 50% reduction or increase in seizure was defined as AEDs non-effective at follow-up.

The study was approved by the Ethics Committees of West China Hospital, Sichuan University. All participants provided informed consent.

2.4. Statistical analysis

Continuous variables were reported as the median (range) or mean ± SD while categorical variables were described in terms of frequency. Two-tailed t test was used for continuous variables and chi-square test was applied for categorical variables. Fisher's exact test was used for the relatively small sample size. The correlates of epilepsy prognosis were determined using logistic regression models and optimum subsets regression. Two-sided p-value <0.05 was considered to be statistically significant. Statistical analyses were performed using SPSS 20.0 software.

3. Results

3.1. Demographic data

There were 486 admissions for seizures during the recruitment period. Eighty-nine people had acute symptomatic seizures and 36 only had a single unprovoked seizure at initial presentation and were excluded. Three further patients who were initially excluded but had later recurrence were then included (see Fig. 1). Twenty-one refused consent, thus a total of 340 people were included. Among these, 214 (63%) were male and the median age was 73.5 years (range 65–97 years) (see Table 1). Forty-five (13.2%) patients with seizure onset before age of 65 years were classified into early-onset group, and 295 (86.8%) were included into late-onset group. One participant in the early-onset group had seizures since childhood and three had seizures since early adulthood but had not been diagnosed as epilepsy prior to their referral to the hospital. Twenty-six (7.6%) were lost follow-up and 16 (4.7%) died during the follow-up period (cardiac failure, pulmonary infections, cancer, stroke or other causes).

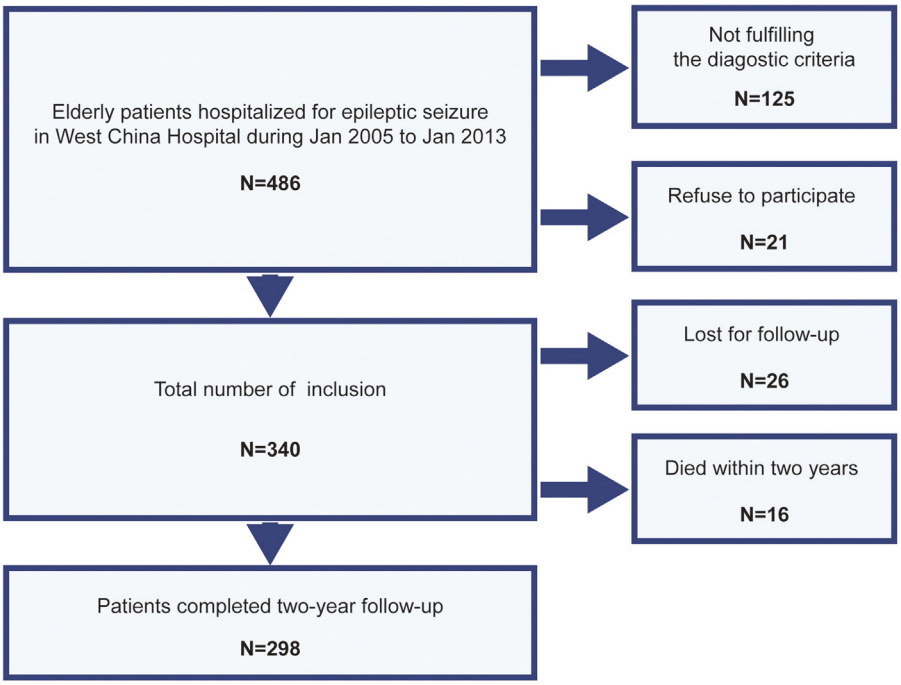

Fig. 1. The working flow of patient recruitment and follow-up.