

# Epilepsy in patients 60 years and above

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## ABSTRACT

**الأهداف:** تقييم السمات السريرية ومسببات مرض الصرع لمن هم في عمر الستين فما فوق في المنطقة الغربية من المملكة العربية السعودية. يعتبر مرض الصرع ثالث أكثر المشاكل العصبية شيوعاً بين كبار السن، والذي يصعب تشخيصه بصورة مطلقة.

**الطريقة:** قمنا بمراجعة السجلات الطبية لمرضى في عمر الـ 60 عاماً فما فوق بمستشفى الملك خالد للحرس الوطني - جدة - المملكة العربية السعودية، خلال الفترة ما بين عام 1999م وحتى 2007م، الذين أصيبوا بنوبات تشنج حديثة وتم تشخيص حالاتهم بصورة مؤكدة على أنها صرع. وقد تم استبعاد المرضى لمن هم دون سن الـ 60 عاماً.

**النتائج:** أُجري هذا البحث على 75 مريضاً ممن أصيبوا بتشنجات، وقد كانت النتائج كالتالي: 40 مريضاً يمثلون نسبة 53.3% تم تشخيص المرض على أنه تشنج جزئي بؤري، 18 مريضاً يمثلون نسبة 24% تم تشخيص المرض على أنه نوبات تشنج عام، 13 مريضاً يمثلون نسبة 17.5% لم يتم تصنيف المرض لديهم، 4 مريضاً يمثلون نسبة 5.3% تم تشخيص المرض أنه نتيجة التشنج الإغمائي. كانت نتائج تحديد أسباب التشنجات التي وجدناها بعد إجراء البحث على 75 مريضاً كالتالي: 52 مريضاً يمثلون نسبة 69.3% والمرضى كان سكتة دماغية، 9 مريضاً يمثلون نسبة 12% وكان المرض غير معروف السبب، 8 مريضاً يمثلون نسبة 10.7% وكان المرض ورم، 3 مريضاً يمثلون نسبة 4% والمرضى كان إصابة، 3 مريضاً يمثلون نسبة 4% والمرضى كان عدوى، كما أنه لا يوجد بين أفراد عائلات المرضى من لديه حالات صرع.

**خاتمة:** إن النوع الأكثر شيوعاً من أنواع الصرع فيمن هم في عمر 60 عاماً فما فوق هو الصرع ذو الأعراض المرضية مع سكتة دماغية كسبب مؤدي إليه. كما أن تعديل عوامل الخطورة لحدوث سكتة دماغية كارتفاع ضغط الدم، مرض السكري، وارتفاع نسبة الكوليسترول في الدم من الممكن أن تقلل من حدوث صرع في مثل هذا العمر.

**Objectives:** To evaluate the clinical characteristics and etiology of epilepsy at age 60 years and above in the Western Region of Saudi Arabia (KSA), as epilepsy is now considered to be the third most frequent neurological problem in the elderly population.

**Methods:** We retrospectively reviewed the medical records of patients 60 years and above at King Khalid National Guard Hospital, Jeddah, KSA between 1999 and 2007 with new onset of seizures and diagnosed as suffering from epilepsy. We excluded patients 60 and above with provoked seizures.

**Results:** Seventy-five patients of late onset epilepsy were studied. Partial seizure (focal) was found in 40 patients (53.3%); generalized tonic clonic seizures in 18 patients (24%); unclassified seizure in 13 patients (17.5%); and status epilepticus in 4 patients (5.3%). Stroke was the underlying etiology in 52 patients (69.3%); brain tumor was found in 8 patients (10.7%), trauma in 3 patients (4%), and infection in 3 patients (4%). None of the patients had a family history of epilepsy. No cause (idiopathic) was found in 9 (12%) patients.

**Conclusion:** The most common type of epilepsy at age 60 and above in our study is symptomatic epilepsy with stroke as the leading cause. Modifying risk factors for stroke such as: hypertension, diabetes mellitus, and high cholesterol may reduce the incidence of epilepsy in this age group.

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The annual incidence of seizures in old age was reported as 134 cases per 100,000 with a prevalence of 1%.<sup>1,2</sup> In nursing home individuals, the prevalence of epilepsy exceeds 5%.<sup>3</sup> Around 25% of all new cases of epilepsy occur in people at the age 60 years old. Hauser et al<sup>4,5</sup> found that the incidence of epilepsy occurring at the age of 70 years old is almost double that of children, and by the age of 80 years old, more than 3 times the incidence during childhood. At this age, the first unprovoked seizure tends to have higher rate of

recurrence than the younger patients.<sup>6</sup> The diagnosis of epilepsy in old age may be difficult and takes time to reach. Most of the seizures in this age group are focal.<sup>4</sup> Stroke is the leading cause at this age with 30-50% of cases.<sup>7-9</sup> We conducted this study to investigate the pattern of late onset epilepsy in the Western Region of Saudi Arabia.

**Methods.** We retrospectively reviewed the medical records of patients with a diagnosis of epilepsy from 1999 to 2007 in King Khalid National Guard Hospital, Jeddah, Kingdom of Saudi Arabia. Two of the authors independently reviewed the patient records. The inclusion criteria included the new onset of unprovoked seizure at age 60 years and above. Status epilepticus patients were included in the study. Post stroke epilepsy was defined as having 2 or more seizures after a week or more after the stroke. The exclusion criteria were age less than 60 years, and patients with provoked seizures. All patients underwent CT or MRI, and EEG.

Chi square test from the Statistical Program for Social Sciences (version 11.5) was used to analyze the study, and study the correlation between type of stroke and gender.

**Results.** Seventy-five patients with late onset epilepsy within the age range of 60-91 years (mean 71 years) were studied. There were 56 (74.4%) male, and 19 (25.3%) female patients. Seizures were classified according to the International League Against Epilepsy criteria (ILAE 1981).<sup>10</sup> Seizures were focal in 40 patients (53.3%), simple partial seizures in 16 patients (40%), complex partial seizures in 24 patients (60%), generalized tonic clonic seizures in 18 patients (24%), and unclassified in 13 patients (17.5%). Status epilepticus was found in 5 patients (5.3%). Epilepsy was symptomatic in 66 (88%) and idiopathic or cryptogenic in 9 (12%) patients. The underlying etiological factors are shown in Table 1. There was no significant difference found between the type of stroke (either ischemic or hemorrhagic) and gender of the patients ( $p>0.05$ ), thus indicating a negative correlation between type of stroke and gender.

**Table 1** - Underlying etiological factors in the patient group.

Etiology of epilepsy	n	(%)
<b>Stroke</b>	52	(69.3)
Ischemic Stroke	40	(76.9)
Hemorrhage	12	(23.1)
Idiopathic/cryptogenic	9	(12)
Tumor	8	(10.7)
Trauma	3	(4)
Infection	3	(4)

**Discussion.** As the elderly population is growing in Saudi Arabia, an increased risk of stroke incidence is also expected to rise. Stroke is the leading cause of epilepsy in the elderly.<sup>7-9</sup> Our findings are consistent with previous studies of stroke as the underlying etiology in more than half of the patients.<sup>6-8</sup> The mechanism of late onset epilepsy after ischemia is because the brain depends on blood flow, and a continuous supply of oxygen and glucose for its normal metabolism.<sup>11</sup> After stroke, specific neuronal degeneration has been observed in both patients and animals in the hippocampus, and an ischemic episode induces delayed selective damage of the CA<sub>1</sub> pyramidal neuron, which is highly epileptogenic.<sup>12,13</sup> Infections, especially tuberculosis should be looked for in patients with late onset epilepsy in our region, as this is one of the common infectious diseases, and 2 of our patients suffered from tuberculoma of the brain. A striking finding in our study was the increased number of cryptogenic seizures. Elderly patients with idiopathic (cryptogenic) epilepsy have a high risk of stroke,<sup>5</sup> and these patients should be screened for vascular risk factors. Dementia was reported in the literature as the second cause of unprovoked seizures in the elderly, which is not reflected in our study. This is probably due to selection bias, and secondarily that seizure in the elderly maybe subtle and underdiagnosed in our community of demented patients. Our study also shows that the incidence of epilepsy is higher in males than in females, but this may also be due to selection bias. One of the risk factors is diabetes with a high prevalence in the Saudi population, as an incidence of 23% has been reported. Hypertension is a common risk factor in our patients, and has been found to affect seizure susceptibility.<sup>14</sup> The limitation of this study is the highly selected patient group, as it is hospital based, and patients with stroke are more likely to be admitted.

In conclusion, stroke was the common cause of late onset epilepsy in our study. This emphasizes the importance of controlling risk factors for stroke, especially hypertension, diabetes, and high cholesterol. This may have a significant role in reducing the incidence of late onset epilepsy in our population. A prospective study will be of great value in the future.

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