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Prevalence Of Late Onset Epilepsy In Algeria

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Abstract:
Background*: Epilepsies are the most common chronic disabling neurological conditions. Late-onset epilepsies are always suspicious and often pose the problem of their etiology. It is an epileptic disease whose first epileptic seizure begins from the age of 25 years. The aim of this study was to estimate the prevalence of epilepsies in subjects whose first epileptic seizure begins from the age of 25 years.*
Materials and Methods*: The study population includes all Algerian patients whose age of onset of the first seizure is 25 years or more, recruited during the period from January 2008 to December 2016. Patient recruitment benefited from two cohorts: one in a retrospective study over 6 years (from January 1, 2008 to December 31, 2013), the other in a prospective study over 3 years (from January 1, 2014 to December 31, 2016) at ALI AIT IDIR Hospital in Algiers.*
Results: *Among 336 patients with late onset epilepsy seen between 2008 and 2016. The distribution by age group clearly shows the evolution of the incidence of late onset epilepsy with advancing age. It involves taking into account the structure of the population. The prevalence of late onset epilepsy in Algeria in our study is estimated at 20 per 1000.*
Conclusion: *The average age of our patients was 47.6 years with limits ranging from 25 to 85 years. There are a variation in the incidence of late onset epilepsy with increasing age. During the study period, 336 cases of late-onset epilepsy were diagnosed ; it is a proportion of late onset epilepsy of 34% compared to all epilepsies.* The prevalence of late onset epilepsy in Algeria in our study is estimated at 20 per 1000.
Keywords*: Late onset epilepsy, Average age, Prevalence of late epilepsy, Algeria*

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I. Introduction

Epilepsies are the most common chronic disabling neurological conditions. Late-onset epilepsies are always suspicious and often pose the problem of their etiology. It is an epileptic disease whose first epileptic seizure begins from the age of 25 years.

Prevalence expresses the number of individuals, within a population, meeting the criteria for defining the disease. It is expressed by a rate related to 1000 inhabitants/year.

Prevalence quantifies the number of cases present at a given time in a given population. It is generally expressed, for epilepsies, as the number of cases of active epilepsy per 1000 inhabitants, but can also be expressed as a percentage.

The prevalence of late-onset epilepsy is extremely variable depending on the country and the prevalence survey carried out.

In Algeria the prevalence of epilepsy was estimated at 5.6/1000h in the work of M. AIT-KACI-AHMED, 1978 (WHO) [1]. In 2012 D. Moualek et al [10] found a prevalence of 8.3 p 1000 inhabitants.

In some studies, the prevalence is higher in developing countries compared to industrialized countries due to the accumulation of risk factors:

- Infectious diseases: Like neuro-malaria, neurocysticercosis, but also neuroAIDS in some countries.
- Head trauma: Traffic accidents, war accidents.

In some industrialized countries, the prevalence shows a high rate in subjects aged 60 and over (Tapani Keranen et al, 1989) [5] and (Pedro J. Serrano-Castro et al, 2015) [2].

Prevalence studies in developing countries insist on a high prevalence rate in subjects whose age is less than 60 years, age group 15-69 years for (Ewan Hunter et al, 2012) [6] and age group 18-60 years for (Hamdy N. El-Tallawy, 2013) [7].

II. Material And Methods

The study population includes all Algerian patients whose age of onset of the first seizure is 25 years or more, recruited at ALI AIT IDIR Hospital in Algiers.

A. Inclusion criteria:

1. The age of the patients must be greater than or equal to 25 years at the time of inclus.
2. Patient presenting with his first epileptic seizure at the age of 25 years or older.
3. Clinically and electrically confirmed diagnosis of epilepsy.

B. Exclusion criteria:

1. Age less than 25 years

C. Course of the study:

1. Method of recruitment:

Patient recruitment was carried out:

- In neurology emergencies, epilepsy consultation, hospitalization services (three in number) of neurology of the EHS ALI AIT IDIR in Algiers.
- At the EEG laboratory of the EHS ALI AIT IDIR in Algiers.
- Neurosurgery emergencies, neurosurgery consultation, hospitalization services (three in number) of neurosurgery
of the EHS ALI AIT IDIR in Algiers.
- From patients referred by medical practitioners and neurologists from all the wilayas of Algeria.

2. Total duration of the study:

Patient recruitment benefited from two cohorts:

- One in a retrospective study over 6 years (from January 1, 2008 to December 31, 2013).
- The other in a prospective study over 3 years (from January 1, 2014 to December 31, 2016).

III. Results

Our study population includes 336 patients, recruited during the period from January 2008 to December 2016. This figure corresponds to the number of patients selected according to the inclusion criteria.

1. Annual number of patients during the study period:

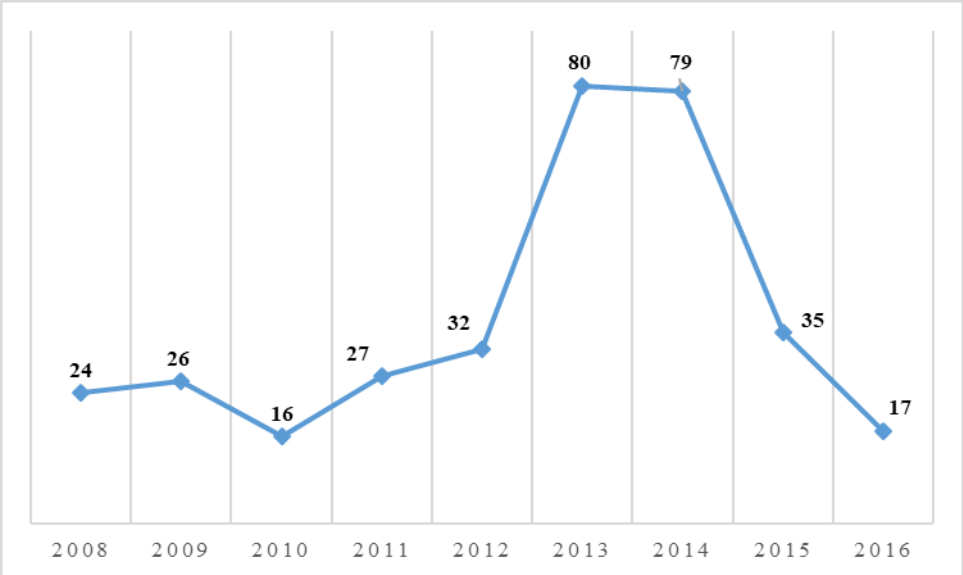

Figure 1. Annual number of patients with late-onset epilepsy during the study period

This table shows a peak in recruitment during the years 2013 and 2014, which has not received any particular explanation.

2. Distribution by age

This data is particularly important since it shows the variation in the incidence of epilepsy with increasing age.

Table 1. Distribution of patients by age group

	Cases	%
25-29 years	45	13,4
30-34 years	47	14
35-39 years	48	14,3
40-44 years	28	8,3
45-49 years	28	8,3
50-54 years	24	7,1
55-59 years	25	7,4
60-64 years	25	7,4
65-69 years	19	5,6
70-74 years	21	6,2
75-79 years	16	5
80 years and over	10	3
Total	**336**	**100 %**

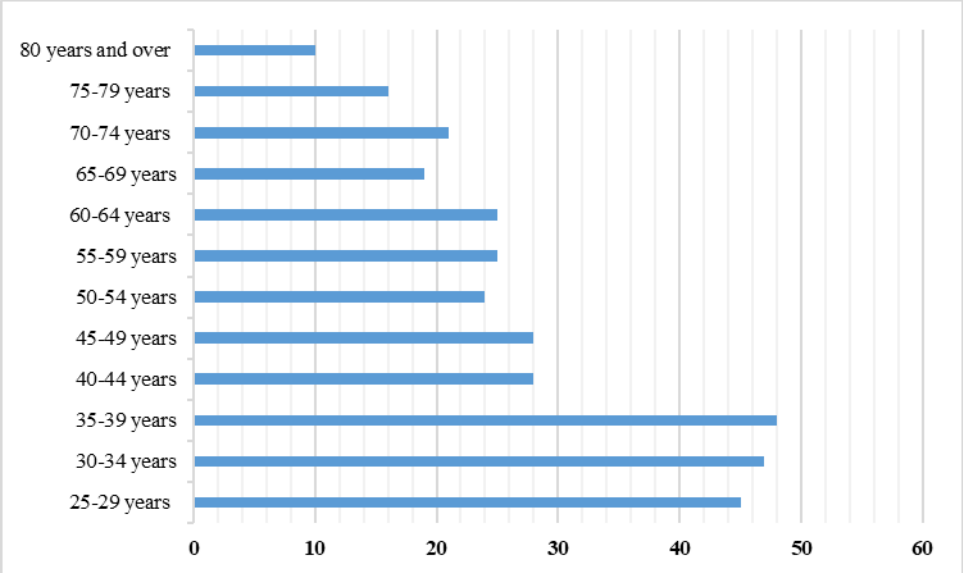

Figure 2. Distribution of patients by age group

The distribution by age group clearly shows the evolution of the incidence of late onset epilepsy with advancing age. It involves taking into account the structure of the population.

3. Prevalence:

Prevalence quantifies the number of cases of late onset epilepsy at a given time in the Algerian population. It is expressed in general, per 1000 inhabitants.

The prevalence of late onset epilepsy in Algeria in our study is estimated at 20 per 1000.

IV. Discussion

The average age in our study was 47.6 years, with limits ranging from 25 to 85 years. In the different studies, the average age varies from 20 to 53 years. This difference could be explained by the choice of the age of onset of the first late attack and the structure of the population of the country concerned.

During the study period, 336 cases of late onset epilepsy were diagnosed, it is a proportion of late onset epilepsy of 34% compared to all epilepsies.

The prevalence of late onset epilepsy in Algeria in our study is estimated at 20 per 1000.

Our results are in agreement with the literature data on late onset epilepsy reported by Pedro J. Serrano-Castro, et al. 2015 [2], who noted a high rate of 14.8 per 1000.

Other studies (R. Sridharan et al, 1986 [8]; Tapani Keranen et al, 1989 [5]; Andre Oun et al, 2003 [4]; GCY Fong et al, 2003[9]; Marie-Christine Picot et al, al, 2008 [3]; Ewan Hunter et al, 2012 [6]) show a low rate between 1.5 and 6.3 per 1000. This heterogeneity in prevalence could be explained by selection bias (concerning the concept of age of onset of late onset epilepsy) and by the difference in risk factors.

The prevalence of late-onset epilepsy varies according to prevalence surveys carried out and depending on the country, the prevalence is higher in developing countries compared to industrialized countries due to the accumulation of risk factors (infectious pathologies: such as neuro-malaria, neuro-cysticercosis, neuro-AIDS) or (Head trauma: traffic accidents, war accidents).

Prevalence studies in developing countries insist on a high prevalence rate in subjects aged under 60, age group 15-69 for Ewan Hunter et al, 2012 [6]; and age group 18-60 years for Hamday N.EL-Tallawy, 2012 [7]. The prevalence varies according to age group and gender.

In the study by R.Sridharan et al, 1986 [8], the prevalence of active epilepsy varies according to the age of onset, it is 3.6 per 1000 for the 15-24 age group, then decreases to 1 per 1000 in the group of subjects over 60 years of age.

In the study by Tapani Keranen et al, 1989 [5], the prevalence decreases after the age of 30 years in women.

The prevalence in the epidemiological survey by Andre Oun et al, 2003 [4], shows a stabilization for the respective age groups (30-39 years, 40-49 years and 50-59 years), as well as 60-69 years, then decreases in subjects aged 70-79 years.

The prevalence for the age group (80 years and over) is threefold in the male sex (10/1000 vs 3.2/1000).

In the study by GCY Fong et al, 2003 [9], the prevalence shows high rates in subjects aged 25-30, then gradually decreases and shows high figures in the males gender.

In the work of Ewan Hunter et al, 2012 [6], the highest prevalence is found in the 20-24 age group, and low in subjects aged 60 and over. It also presents high rates in the males gender for the respective age groups of 20-44 years, 50-60 years and over 60 years.

Pedro J-Serrano Castro et al, 2015 [2], shows that the prevalence is higher for the 18-40 age group, then decreases for the respective age groups of 40-60, 60 and over.

Table 2. Literature review of prevalence of late-onset epilepsy

Study	Country	Number of cases	Prevalence for 1000
R.Sridhan et al, 1986	Libya	568	2.3
Taponi Keranen et al, 1989	Finland	230	6.3
Endre Oun et al, 2003	Estonia	396	5.3
ECY Fong et al, 2003	Hong Kong	736	1.5
Marie –Christine picot et al, 2008	France	360	5.4
Ewan Hunter et al, 2012	Tanzania	291	2.8
Perdo J. Serrano-Castro et al, 2015	Spain	22	14.8
Our study	**Algeria**	**336**	**20**

V. Conclusion

Our study population includes 336 patients, recruited during the period from January 2008 to December 2016. These patients were selected according to the inclusion criteria.

The average age of our patients was 47.6 years, with limits ranging from 25 to 85 years.

During the study period, 336 cases of late onset epilepsy were diagnosed, it is a proportion of late onset epilepsy of 34% compared to all epilepsies.

The prevalence of late onset epilepsy in Algeria in our study is estimated at 20 per 1000.

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