

## **CHAPTER II**

### **The Epilepsy Situation in the Current Public Health Care System**

#### **Geographic Information**

Nakhonratchasima, one of 76 provinces of Thailand, is the second biggest province following Bangkok and covers 20,493.96 square kilometers. It is in northeast Thailand and 256 kilometers from Bangkok. The northern boundary is close to Chaiyaphum and Khonkaen Provinces, the southern part is close to Pharchinburi and Nakhonnayok Provinces, the eastern part is close to Buriram Province, and the western part is close to Chaiyaphum and Saraburi Provinces.

This province consists of 26 districts and 6 district-branches. Most of the area is plateau and surrounded by the Kalyai and Pharnomdongruk ranges of hills in the south and the west.

The total population in 1998 was 2,523,603 people. Fifty point two percent is female. The mean age of life span for females and males is 68.29 and 63.95 years, respectively.

The main occupation is agriculture. Eighty-nine point seven percent of the population below 14 years of age has completed the compulsory education program

and most people are literate. Only 47.9 % of population have mean family income more than or equal to 20,000 Baht/year.

Transportation, particularly public transportation, exists only in the city and is not available in the districts or countryside. Most people take a private bus running on a regular schedule from 6 a.m. until 3 or 5 p.m. or a hired car. Some people need to get a second private bus to reach their destination. This inconvenient transportation is found everywhere in the countryside of Thailand.

### **Public Health System Information**

In Thailand, the public health system comprises many ranks of care service from the lowest rank closest to the people to the highest rank that is in the center of province as follows:

At the village level closest to the people, there are 33,716 public health volunteers distributed throughout the entire province. They were trained in a basic patient care programme and have the ability to dispense basic drugs.

At the sub-district level, a sub-district health office was built in each sub-district except some larger sub-districts which have more. In each sub-district health office, there are two or three health care officers working and prescribing or injecting any drugs existing there. The drug lists are assigned by national drug lists

and procured by the provincial public health office. This is the public health care system level close to patients where health care professionals can prescribe drugs.

At the district level, there is one community hospital in each district area. There is a total of 26 community hospitals in this province. Some of the district-branches do not have a hospital yet because of just being upgraded from sub-district to district-branch. The district-branch has more population and prosperity than the sub-district but less than district. The district-branch is between sub-district and district in terms of population and prosperity. Each community hospital has at least one GP and a number of nurses and other hospital personnel depending upon the number of hospital beds. Before the hospital will be built, the Director of the Provincial Public Health Office and the Permanent Secretary of the Ministry of Public Health scrutinize and assign the size of hospital. As time passes, the increase in number of population and in prosperity will develop the hospital into a bigger one. The size of hospitals in the province ranges from 10 to 90 hospital-beds.

At the provincial level, there is only one hospital which is Maharaj Nakhonratchasima Hospital acting as the provincial and central hospital serving patients from 4 to 5 other provinces around. Each level of hospital will link with others through a referral system. Nevertheless, patients in Thailand have the right to visit any physician anywhere they prefer.

## **Epilepsy Information in Nakhon Ratchasima Province**

There are 1361 epileptic patients registered at the Provincial Public Health Office. Three hundred and fifty nine patients are registered at community hospitals and 1002 patients at sub-district health offices. Some patients might be registered in both. From the public health officer reporting data, up to 96.9 % of patients received regular treatment and care. However, the regularity of care measurement criteria is not clear.

From our previous community survey, study of epileptic patients in one district in Nakhonratchasima Province, the first survey step was sub-district health officers in the district screening patients in their areas by using the screening questionnaire. Then, known epileptic patients and patients with positive screening questionnaires would be diagnosed by a neurologist. All epileptic patients would be asked about their compliance, causes of non-compliance for non-compliant patients, number of types of antiepileptic drugs and number of pills of each type of drugs taken a day. For patients having antiepileptic drugs more than one pill, they would be asked whether or not a blood sample was drawn. Because of the cross-sectional study, compliance was defined as patients who had taken their medicine 100% following health care providers' prescription and had 100% regular follow-up. The study revealed 87 patients with epilepsy. The prevalence of this district is 1-2 /1000 that is less than from previous reports of the prevalence in developing countries. Most epileptic people are female (67.3%) and the age-range of 50% of patients is 20-39 years old, a group which is essential for the development of the country.

Most patients have generalized seizures and up to 63.2% of all patients have had at least one seizure occurrence during the past two years. The average seizure frequencies of these patients are 3-7 times/month. Only 50% of patients are compliant (on the definition of 100% of adherence to taking AED and follow-up). The top five causes of non-compliance include insufficient patient knowledge of epilepsy corresponding with the low percentage of patients who completed the compulsory educational program. The second and third causes are misbelief and indifference with forgetfulness, respectively. The fourth cause is low socioeconomic status particularly affecting ability to pay the travelling fare. Most patients have health insurance for getting free health care service but they need to pay travelling fare of up to 30 Baht/round trip, which is quite expensive. The last cause is nobody takes the patient to the hospital because nearly 50 % of patients have no ability to visit the physician alone or the patient' s relatives are afraid of accident from seizure occurrence on the way to the hospital if the patient goes alone.

From the previous study as well, health care providers practiced improper treatment of their patients particularly improper dosages of antiepileptic drugs (AED) and unreasonable use of polypharmacies.

The improper dose use of AED, resulted from a calculation using the range of that drug per kilogram body weight multiplied by body weight of a patient. Unreasonable use of polypharmacies was defined as patients who took more than one AED pill without checking the blood level of AED. Even though, this information might not represent the epilepsy population in this province, it indicates

some point of view that the public health system should improve standards and quality of care.

In order to achieve seizure control, first of all, all patients need to be registered at a unique center. Secondly, patients and health care providers need to have sufficient knowledge about epilepsy. Thirdly, patients need to regularly follow their appointment date incorporating an existing effective recall system. Ultimately, health care service needs to be conveniently accessible, close to patients and have high standard of care to increase patient's confidence.

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