



Knowledge, attitudes, and practices towards epilepsy among general practitioners in rural Bolivia: Results before and after a training program on epilepsy

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ARTICLE INFO

Article history:

Received 2 January 2018
Revised 6 February 2018
Accepted 6 February 2018
Available online xxxx

Keywords:

Epilepsy
Health promotion
Tropical health

ABSTRACT

Introduction: Epilepsy represents a major health problem in low- and middle-income countries where treatment gap (TG) levels are high. The reduction of epilepsy TG in the rural area of the Chaco region, Plurinational State of Bolivia, has been the aim of many projects based on the reinforcement of the primary care setting. To plan educational campaigns directed to the healthcare professionals, it is necessary to establish their baseline knowledge level. The objective of our study was to assess the baseline level of knowledge, attitudes, and practices (KAP) towards epilepsy among general practitioners (GPs) of the rural communities of the Chaco region.

Methods: The study was conducted in three departments of Bolivia. All the GPs living in these areas were invited to participate in the study consisting of two training modules six months apart from each other, each with two-day duration. They answered a validated questionnaire to evaluate the KAP towards epilepsy before and after the courses.

Results: Fifty GPs [30 men (60%); mean age: 32.1 ± 5.8 years] participated in the first training course. After six months, 31 GPs (62%) [19 men (61.3%); mean age: 33 ± 5.0 years] participated in the second module. Before the training, the majority of GPs declared a low level of satisfaction about their epilepsy knowledge, which improved after the courses. A change in practices was recorded after the training, with an increased confidence to manage antiepileptic treatment.

Conclusion: Our study showed the significant impact of specific training programs on epilepsy among GPs.

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1. Introduction

Epilepsy is one of the most common neurological diseases, especially in low- and middle-income countries (LMICs) where it represents a major health problem. In particular, it affects approximately 5 million people living in Latin American Countries (LAC) [1–3]. In the Chaco region, Plurinational State of Bolivia, it has been estimated that the prevalence of lifetime epilepsy (LTE) is 12.3/1000, and the prevalence of active epilepsy (AE) is 11.1/1000, of which 80% is epilepsy associated

with convulsive seizures (EACS), with a treatment gap (TG) of 90%. In a more recent study carried out in the same area, the lifetime prevalence of EACS was 7.2/1000 while the prevalence of active EACS was 6.6/1000 with a crude incidence risk of 55.4/100,000 [4–6]. According to a recent meta-analysis, the TG in Latin American countries was 60.6% (95% confidence interval (CI): 45.3–74.9), clearly different between rural (77.8%; 95% CI: 67.4–86.8) and urban (26.2%; 95% CI: 10.2–46.4) settings [6]. Inadequately skilled manpower, treatment cost, unavailability of drugs, cultural beliefs, use of traditional medicine, and distance from a healthcare facility are considered to be the main causes of the epilepsy TG in these regions as well as in other LMICs [7]. In fact, as highlighted in a previous anthropological study conducted in these areas, most of the community inhabitants do not know the origin of epilepsy and often think of it as a result of the infringement of social habits, and they favor a traditional treatment approach [8]. All of these causes can be addressed with appropriate interventions, although some, such as

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cultural beliefs and use of traditional medicine, are more challenging to change [9].

In LMICs, general practitioners (GPs) play a major role in providing medical care and social support to people with epilepsy (PWE). However, in rural areas, nonmedical health workers such as nurses and community health workers (CHWs) are often the only healthcare staff available to recognize convulsive epilepsy, being stable members of the communities in which they work. As pointed out by recent World Health Organization (WHO) recommendations, convulsive epilepsy, the most common and life-threatening condition, should be diagnosed at primary care level by trained nonspecialist healthcare providers in LMIC settings [10]. However, in countries where no specific programs on epilepsy exist, little data are available on the specific knowledge of the healthcare staff from different settings or specialties. The poor knowledge of the healthcare staff has been suggested as a contributing cause to the epilepsy TG [11].

The reduction of epilepsy TG in the area of Chaco has been the main aim of the projects carried out for more than 20 years in this area [4,5,8,9,12,13]. This objective goes through the reinforcement of the primary care setting by implementing an action plan aimed at preventing, treating, and managing epilepsy at a community level.

To correctly plan educational campaigns directed to the healthcare professionals that primarily deal with PWE, it is therefore necessary to establish the level of knowledge of epilepsy that these workers have.

The main objective of our study was to assess the baseline level of knowledge, attitudes, and practices (KAP) towards epilepsy among GPs working in the rural communities of the Chaco region in Bolivia.

2. Methods

2.1. Study area

The Plurinational State of Bolivia is a low-income country where almost 4 million people live under the “poverty line” [14], especially in rural areas, and where access to the health system is still difficult, since the country has the lowest ratio of health workers per person of all the American countries, as low as 14.1 per 10,000 inhabitants [15]. The study has been conducted in three departments of Bolivia: the department of Santa Cruz, municipalities of Lagunillas (5366 inhabitants) and Gutierrez (12,273 inhabitants); the department of Chuquisaca, municipalities of Huacaya (2426 inhabitants) and Machareti (7062 inhabitants); and the department of Tarija, municipality of Villamontes (9572 inhabitants). These three departments are part of the Chaco region, which is a subtropical area of low forests and savannas, inhabited by indigenous Guaraní people. They live in communities that often lack basic services such as running water or electricity, basing their economy on animal husbandry and agriculture. All the GPs operating in the above-mentioned rural areas were invited to participate in the study.

2.2. Study population

In the rural communities of the Chaco region in Bolivia, healthcare services are provided by three professional figures: the community health workers (CHWs), the nurses, and the GPs. General practitioners are employed in health centers located in the larger communities (*secondary care level*), where basic field hospitals offer laboratory analysis, basic surgery, and delivery services. Only a minority of the GPs work in the smaller rural communities, where health posts are available (*primary care level*).

In the latter case, CHWs and nurses are the main healthcare providers, located in health posts. Neurologists and epilepsy services are accessible only in large cities (capital departments) in *tertiary care level attention*: private institutes and specialized hospitals. However, these are generally very far and too expensive for people living in the rural

communities; therefore, the diagnostic and therapeutic management of PWEs in the rural setting is demanded to local health personnel, usually nurses and CHWs.

2.3. Survey instrument

To evaluate the KAP of the GPs towards epilepsy, we used a slightly modified version of a preexisting self-administered 38-item questionnaire already validated in the Spanish language [16]. The Spanish version of the questionnaire, used in Tenerife, has been adapted from the English version, previously adopted in Australia, to evaluate KAP towards epilepsy among physicians [17]. The instrument is composed of five questions that explore the knowledge about epilepsy, 26 that explore the attitudes towards epilepsy, and seven questions about practices (Supplement 1).

2.4. Study design

The study was performed from June 2016 to April 2017 as part of a larger interventional training program on epilepsy performed in the selected areas. The program consisted of two modules delivered six months apart from each other, each one over two days, including the following topics about epilepsy: epidemiology, public health aspects, causes, diagnosis and differential diagnosis, drug treatment, first aid, prevention of the secondary forms of epilepsy (infectious disease, head trauma, perinatal care), psychosocial aspects (social difficulties, prejudice, and stigma), and strategies to deal with them. The training courses were all held by a local neurologist (EBCG) with the help of a local anthropologist (SP). General practitioners were invited to participate in the training program through an extensive media campaign and through communications provided by the local health authorities one month in advance for each meeting. Participants were provided with transportation means, if needed, in order to allow the healthcare workers from the farthest communities to attend the training courses. The participants were required to answer the questionnaire before their admission to the courses to assess the baseline levels of KAP towards epilepsy. The same questionnaire was administered to the participants after the last module of the courses in order to evaluate the possible improvement of KAP among GPs after the training. Only the answer of the GPs participating in both the first and the second training courses were compared. The study was developed in accordance with the Standards for Quality Improvement Reporting Excellence (SQIRE 2.0) guidelines (Supplement 2).

2.5. Statistical analysis

Information was entered in an ad-hoc created database (Epidata 2.0.5.17) by a trained local worker. Quality control was performed before statistical analysis using STATA 12 software packages (version 12.0, College Station, TX). Quantitative variables were described using mean and standard deviation. The difference between means and the difference between proportions were evaluated using *t*-test and chi-square or Fischer tests respectively. For the comparisons of paired data, appropriate tests were used (paired *t*-test and one-tailed McNemar test). In case of not normal distribution, appropriate nonparametric tests were performed.

2.6. Ethical approval

The study had the approval of the Bolivian Neurological Society institutional review board (IRB). Participants of the study signed a written informed consent.

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