Preface

Botanicals for epilepsy☆

A large number of people with epilepsy (PWE) all over the world use botanicals as supplements or replacements of synthetic antiepileptic drugs (AEDs) or because herbal medicines are the only available or acceptable form of therapy. Traditional healers and some medical practitioners prescribe botanicals, but often, patients taking plant medicines don’t tell their doctors about it. Basic researchers have studied anticonvulsant effects of botanicals for more than half a century, but clinical research is virtually lacking. This special issue of Epilepsy & Behavior is dedicated to botanicals, or plant medicines, as a therapeutic option for treating epileptic seizures, which has attracted public attention through the recent interest in the possible therapeutic use of Cannabis for epilepsy.

In this special issue, we bring together reviews of traditional use, basic research, and clinical experience with botanicals for epilepsy. The use of botanicals originates in traditional medical systems and indigenous societies. Traditional Chinese Medicine (TCM) and Ayurveda are two examples of age old traditional medical systems that not only have extensive therapeutic experience in the use of botanicals but also possess extensive and complete theoretical systems underpinning clinical practice, which are often difficult to grasp for Western-trained physicians and scientists. Dr. Xiao et al. [1] review the use of botanicals for epilepsy in TCM. Dr. Sriranjini et al. [2] describe the use of botanicals for epilepsy in the holistic medical system of Ayurveda.

It is estimated that 90% of people with epilepsy live in developing countries, and most of them receive no drug treatment for the disease. Dr. Kakooza-Mwesige [3] introduces the issues around the fascinating and challenging topic of the role botanicals play for the treatment of epilepsy in traditional societies in developing countries where access to conventional medical care and pharmaceuticals is limited.

But even where access to anticonvulsant drugs is not a problem, seizures in up to 30% of PWE do not respond to treatment, and many AEDs exhibit serious adverse effects. This treatment gap has motivated investigations by researchers all over the world into the effects of plants that have been used by traditional healers to treat seizures.

Extracts of hundreds of plants have been shown to exhibit anticonvulsant activity in phenotypic screens performed in experimental animals. Dozens of plant-derived chemical compounds have similarly been shown to act as anticonvulsants in various in vivo and in vitro assays. In their review, Drs. Sucher and Carles [4] show that the described anticonvulsant effects of plant extracts can be attributed to specific secondary metabolites and their interactions with molecular targets in the brain, particularly ligand-gated and voltage-gated ion channels. Together, the data provide a pharmacological basis of the anticonvulsant effects and, thus, justification for clinical studies with selected standardized botanical extracts and plant-derived compounds.

Dr. Ekstein [5] provides an overview of the unique challenges of conducting clinical studies of botanicals for epilepsy and a review of the scarce amount of data which is available in this area so far. Additionally, the methodology of most clinical studies only marginally meets the requirements of evidence-based medicine. Dr. Ekstein concludes, however, that the choice of the best botanical candidates with anticonvulsant properties and their assessment in well-designed clinical trials may significantly improve epilepsy treatment. Dr. Ketcha Wanda et al. [6] review the use of botanicals for mood disorders, which often accompany epilepsy.

Dr. Elsas [7] treats epilepsy patients at a medical center in Switzerland which routinely utilizes herbal medicines in a European regulatory setting and provides a description of a model that shows how useful data of therapeutic experiences can be obtained from practitioners who use botanicals for epilepsy or other conditions.

Dr. Hoffman [8] provides a detailed overview of the process of obtaining an IND or NDA for a botanical product from the Food and Drug Administration (FDA) in the United States (USA), which is the prerequisite for conducting a clinical trial or for registering a new product for sale on the market in the USA.

The important issue of quality assessment of medicinal herbs and their extracts are discussed in two reviews by Drs. Pferschy-Wenzig and Bauer [9] and Drs. Govindaraghavan and Sucher [10]. Herbal medicines are complex multiphase mixtures, and their exact composition is not constant because of inherent variability and a plethora of external influences. In their review, Pferschy-Wenzig and Bauer discuss the application and use of various methods and approaches aimed at ensuring the quality, consistency, safety, and effectiveness of herbal products. Govindaraghavan and Sucher propose criteria for consistent safety and efficacy of herbal medicine products.

The authors contributing to this special issue work in Africa, America, Asia, and Europe, in basic research and clinical research and practice, academia, and industry. We hope that this special issue will stimulate collaborative research in the fascinating area of botanics for epilepsy, similarly transcending disciplinary and economic boundaries.

Conflicts of interest

The authors declare that they have no conflict of interests.

References


