

Expert opinion on drug metabolism & toxicology
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OPINION

on Drug Metabolism & Toxicology

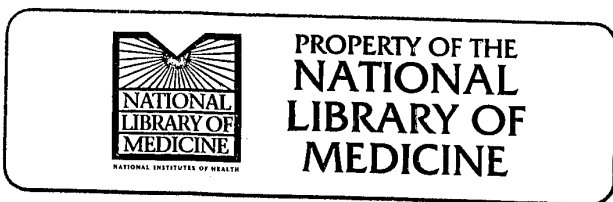
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The Editors welcome:

- *Reviews* covering metabolic, pharmacokinetic and toxicological issues relating to specific drugs, drug-drug interactions, drug classes or their use in specific populations; issues relating to enzymes involved in the metabolism, disposition and excretion of drugs; techniques involved in the study of drug metabolism and toxicology; novel technologies for obtaining ADME-Tox data
- *Drug Evaluations* reviewing the clinical, toxicological and pharmacokinetic data on a particular drug

The audience consists of scientists and managers in the pharmaceutical industry, pharmacologists, clinical toxicologists and related professionals.

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EXPERT OPINION

1. Introduction
2. Introduction to the compound
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Lacosamide for the treatment of epilepsy

Stefano de Biase, Gian Luigi Gigli, Mariarosaria Valente & Giovanni Merlino[†]

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Introduction: Epilepsy is one of the most common neurological disorders. Despite the development of new antiepileptic drugs (AEDs), ~30% of epilepsy patients experience recurrent seizures and even more experience side effects. Therefore, there is still need for new AEDs with enhanced effectiveness and tolerability.

Areas covered: The article is based on a search using PubMed, including articles published between 1999 and 2013. It is focused on the pharmacokinetic, pharmacological and clinical data of lacosamide (LCM) for the treatment of epilepsy.

Expert opinion: Along with favorable tolerability and pharmacokinetic profiles, LCM has been demonstrated to significantly reduce seizure frequency in patients with partial-onset seizures when prescribed as adjunctive treatment at doses of 200 and 400 mg/day. LCM has a unique mechanism of action, selectively enhancing slow inactivation of voltage-gated sodium channels. Its mechanism of action could be exploited to reduce the percentage of pharmacoresistant patients. Although LCM is not FDA approved for treatment of status epilepticus, it has demonstrated promising preliminary results. Large prospective studies are needed to verify these. In addition, the results of ongoing trials will help to confirm if LCM could be used as a monotherapy regimen in the treatment of partial-onset seizures and generalized tonic-clonic seizures.

Keywords: absorption, distribution, elimination, lacosamide, partial-onset seizures, pharmacokinetic, status epilepticus, toxicology

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1. Introduction

Epilepsy is a condition defined by the occurrence of at least two unprovoked epileptic seizures, which is the clinical manifestation of an abnormal and excessive discharge of a set of neurons in the brain [1]. Epilepsy affects up to 2% of the population worldwide, with annual incidence rates of ~40 – 70/100,000/year [2]. The prevalence is estimated as 5 – 10/1000, excluding epilepsy in remission, febrile convulsions and single seizures [3]. Overall prevalence and incidence of epilepsy tend to be lower in developed regions (USA and Europe) in comparison with developing regions (Latin America and Africa). Increased prevalence and incidence may be related to factors such as low socioeconomic status, limited access to healthcare and environmental exposures. In developing countries, prevalence of epilepsy generally peaks in adolescence and early adulthood. On the other hand, in developed countries, incidence and prevalence is higher among the elderly [4].

Seizures can be classified as being generalized (with synchronized discharges involving both hemispheres from onset to termination) or partial (paroxysmal discharge localized to part of the cerebral cortex).

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