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Viewpoint

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ACS Chemical Neuroscience Molecule Spotlight on Potiga (Ezogabine)

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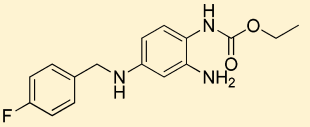
ABSTRACT: On June 10th, 2011, the U.S. Food and Drug Administration approved Potiga (ezogabine) as an add-on medication for the treatment of seizures in adults, and it is being developed by Valeant Pharmaceuticals.



Potiga® (ezogabine)
neuronal potassium channel opener

KEYWORDS: *epilepsy, seizures, potassium channel opener, Kv7*

Epilepsy is a brain disorder that affects the normal electrical functions of the brain causing abnormal activity in the nerve cells. It is estimated to affect nearly 70 million people worldwide and is a significant cause of disability and mortality.[1] The cause of epilepsy can be due to a medical condition such as stroke, traumatic brain injury, infections, etc., or the cause can be unknown (idiopathic). There are three main classes of seizure activity associated with epilepsy: (1) absence seizures (petit mal), generally associated with short-term staring spells (~15 s), (2) generalized tonic−clonic seizures (grand mal), a seizure involving the entire body, and (3) partial seizure (focal), seizures limited to a specific area of the brain.[2] Anticonvulsants are a group of medicines that have been used for over 100 years to treat epileptic seizures; however, in many of these medications, sedation is a significant unwanted side effect.

The newest drug to be approved (as an add-on medication) for the treatment of partial seizures in adults is Potiga (ezogabine). Potiga has a novel mechanism of action for antiepileptics because it acts as a neuronal K_V7 (KCNQ) potassium channel opener; specifically, Potiga is an opener of the $K_V7.2$ and Kv7.3 channels (KCNQ2/3).[3] It is thought that Potiga's robust anticonvulsant activity is due to the widespread distribution of KCNQ2/3 in the CNS and its ability to stabilize these channels in the open position.

In clinical trials, Potiga was shown to significantly reduce the frequency of seizures by ~20−35%, with a percentage having their seizure frequency reduced by as much 50% or more.[4] This trial represented a randomized, placebo-controlled trial of 399 patients that were refractory to therapy with other antiepileptic drugs. Three doses were evaluated (600, 900, and 1200 mg) with dosing regimen being three times daily due to a short half-life of Potiga. Potiga did induce a number of side effects that appeared to be dose related and generally CNS in nature (dizziness, fatigue, memory impairment, double vision, etc.).[4,5] In addition, Potiga may cause urinary retention, and patients should be carefully monitored. In addition, the FDA recommended that Potiga be scheduled as a controlled substance, and final classification will be announced soon.

Potiga is a new entry into the anticonvulsant arena with a novel mechanism of action and should give caregivers a new option in the treatment of this disorder.

AUTHOR INFORMATION

Notes

The authors declare no competing financial interest.

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