IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 6, May 2024

A Research on An Retrospective Study of Commonly Prescribed Antiepileptic Drugs and it's Interaction with Other Drugs which are Already in use Respect to Other Disease

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Abstract: *Antiepileptic drugs (AED) are increasingly used in the treatment of some non-epileptic neurological diseases and psychiatric diseases. Most of the available data on the use of these agents in clinical conditions other than epilepsy are from case series, uncontrolled studies, or small randomized clinical trials, and their apparent efficacy requires confirmation in well-designed large phase III trials.*

Interactions between antiepileptic drugs or between antiepileptic drugs and other drugs can be pharmacokinetic or pharmacodynamic. Pharmacokinetic interactions include changes in absorption, distribution ,or eliminate , while pharmacodynamic interactions include synergism and antagonism at the site ,of action. Most clinically significant antiepileptic drug interactions are due to induction or inhibition of drug metabolism. Carbamazepine, phenytoin, phenobarbital and primidone are strong inducers of cytochrome P450 and glucuronide enzymes (as well as P-glycoprotein) and may reduce the effectiveness of concomitantly administered drugs such as oral anticoagulants, calcium antagonists, antimicrobial steroids. Mechanism Oxcarbazepine, eslicarbazepine acetate, felbamate, rufinamide, topiramate (at doses ≥ 200 mg/day) and perampanel (at doses ≥ 8 mg/day) have weaker inducing properties and less tendency to produce interactions mediated by enzyme induction. In contrast to enzyme induction, enzyme inhibition results in decreased metabolic clearance of the affected drug, which can increase serum concentrations leading to toxic effects. Examples of important interactions mediated by enzyme inhibition include valproic-induced increases in serum concentrations of phenobarbital and lamotrigine. There are also interactions where other drugs induce or inhibit the metabolism of antiepileptic drugs. Examples include an increase in serum carbamazepine concentration due to erythromycin and a decrease in serum lamotrigine concentration due to estrogen-containing contraceptives. Pharmacodynamic interactions between antiepileptic drugs may also be clinically important. These interactions can have potentially beneficial effects, such as the combined therapeutic synergy of valproic acid and lamotrigine, or adverse effects, such as the mutual potentiation of neurotoxicity in patients treated with a combination of sodium channel blocking antiepileptic drugs.

AEDs are also used to treat psychiatric conditions, particularly bipolar disorder. To date, the AEDs most commonly used to treat this disorder have been carbamazepine and valproic acid, which have shown manic efficacy and likely long-term mood-stabilizing effects in many bipolar patients, including those who are lithium-intolerant. . The availability of new generation AEDs has expanded treatment options for bipolar disorder. Lamotrigine, oxcarbazepine, gabapentin, and topiramate appear to show promise in the treatment of bipolar disorder, both as monotherapy and in combination with traditional mood stabilizers. In addition, newer AEDs appear to have a more favorable tolerability and drug interaction profile than older compounds, thus improving compliance

DOI: 10.48175/IJARSCT-18578

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Keywords: antiepileptic drugs, trigeminal neuralgia, neuropathic pain, migraine, essential tremor, bipolar disorder