Carbamazepine is an outmoded drug and should never be used as a first-line drug: NO

Çiğdem Özkara

Carbamazepine (CBZ) is a major first-line AED for partial seizures and generalized tonic-clonic seizures. It is a tricyclic compound discovered by chemist Walter Schindler at J.R. Geigy AG, Switzerland, in 1953 while they were searching for more active psychotrphic drugs. It was first marketed as a drug to treat epilepsy in Switzerland in 1963 and its use for trigeminal neuralgia was introduced at the same time. In 1968, (CBZ) was approved, initially for the treatment of trigeminal neuralgia; later, in 1974, it was approved for partial seizures in USA. CBZ's main mode of action is to block sodium channels during rapid, repetitive, sustained neuronal firing and to prevent posttetanic potentiation.

It is available in immediate and extended release and syrup formulas

CBZ is one of the most widely used AEDs in the world. It is highly effective for partial-onset seizures, in both adults and children. It also has demonstrated good efficacy in the treatment of generalized tonic-clonic seizures..

Although it is considered to be a first-generation drug, studies failed to show any superior efficacy of second- generation drugs over CBZ. Adverse effects were more common with CBZ in some studies however majority of them used immediate release formulas which can cause unwanted effects more than extended release formulations. It is among the first line recommended drugs for partial and generalized tonic clonic seizures even in recent updated guidelines.

Its psychotropic effects is also very important as many newer drugs such as VGB, TPM and LEV have serious behavioral and cognitive side effects which may complicate the treatment of patients with epilepsy who very frequently suffer from various psychological problems.

The therapeutic range is considered between 4-12 μgr/ml and available for monitoring in almost everywhere which may ease the drug management.

The drug is highly effective and well tolerated. Its major disadvantages are transient adverse dose-related effects at initiation of therapy and occasional toxicity. Potential dose-related adverse effects include dizziness, diplopia, nausea, ataxia, and blurred vision. Rare idiosyncratic adverse effects include aplastic anemia, agranulocytosis, thrombocytopenia, and Stevens-Johnson syndrome. Asymptomatic elevation of liver enzymes is observed commonly during the course of therapy in 5-10% of patients. Rarely, severe hepatotoxic effects can occur. Nevertheless, long term usage yielded an accumulated information about the long and short term side effects related to dosage or idiosyncratic reactions which helps the physician to warn and monitor the patients. Moreover recent advances in pharmacogenomics studies showed

serious hypersensitivity reactions in patients with HLA B* 1502 from Han Chinese and South Asian populations. Therefore performance of spesific tests can improve the safety of the drug in suspected groups. On the other hand all new drugs have unwanted side effects i.e. renal stones with TPM and ZNM, retinal problems with VGB, hypersensitivity reactions with LTG, psychiatric disorders with LEV etc. Third generation more newer drugs are so recent that we have to be very careful for unexpected events such as skin discoloration and retinal changes happened with retigabine which limited its usage.
The teratogenic effect may differ among the pregnancy registiries between 2-6% where dosage below than 400mg seems to be relatively safe but coadministration with PB or VPA increases the risk of malformations.
In addition the newer drugs can be significantly more expensive and there is no clear evidence that they are more cost effective.
Finally because of its wide avaibility, relative inexpensiveness and proven efficacy, CBZ continues to be widely used for epilepsy.