SDRL Laboratory

TOXICOLOGY TIMES

SDRL Laboratory

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A FREE Monthly Newsletter for Substance Abuse and Opioid Treatment Programs from San Diego Reference Laboratory

Volume 9, Issue 6

June, 2019

Gabapentin

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The Food and Drug Administration (FDA) approved gabapentin for use in 1993, and it was listed as a generic prescription medication in 2004, with the brand names Neurontin and Gralise. The biological and structural characteristics puts gabapentin in the category of an anticonvulsant. The anticonvulsants are a pharmacologically active group of compounds that are used to control epileptic seizures. Gabapentin was approved for the treatment of seizures and neuropathic pain. In general the anticonvulsants are also used in the off-label treatment of bipolar disorder and borderline personality disorder, since many seem to act as mood stabilizers. It is interesting to note the "on-label" and "off-label" category for drugs. The FDA approval of gabapentin was an on-label approval for the control of seizures and related pain. All the other uses for this drug in the treatment of various diseases and conditions is considered "off-label". This distinction will impact the coverage by insurers for any off-label use. Both prescription drugs and over the counter drugs are treated in this way. Off-label use is generally legal unless it violates ethical guidelines or safety regulations. The ability to prescribe drugs for uses beyond the officially approved indications is commonly used to good effect by healthcare providers. Approximately 90% of prescriptions written for gabapentin are for off-label use.

Anticonvulsants suppress the excessive rapid firing of neurons during seizures. This class of drugs act on diverse molecular targets to selectively modify the excitability of neurons so that seizure-related firing is blocked without disturbing non-epileptic activity. This neuronal activity is very similar to the activity of the endogenous neuronal suppressor gamma aminobutyric acid (GABA), however they do not interfere or interact with each other. This similar but entirely different activity allows the anticonvulsant drugs to control seizures and, at the same time, not interfere with normal function of the nervous system.

The adsorption of gabapentin is inversely proportional to dose. As the dose increases the amount of adsorption decreases, however food and certain drugs enhance the adsorption of the drug. Gabapentin is relatively fat insoluble and does cross the blood brain barrier by active transport. Adsorption occurs principally in the intestines where it is also actively transported. The saturation of this active transport system with higher doses is the mechanism for the inverse relationship of dose to adsorption. Food or other drugs that slow down the transit time in the intestines or change intestinal motility will enhance the adsorption of the drug. Gabapentin is not bound to any plasma proteins and is not metabolized. It is primarily eliminated in the urine (95%) virtually unchanged, with a small amount (5%) eliminated in the feces. A form of gabapentin called gabapentin enacarbil was approved and released by the FDA in 2011. This is a prodrug form of gabapentin and requires the release of the drug through esterase enzymes in the intestines which results in gabapentin. Adsorption, distribution, metabolism, and excretion are all the same for both forms of the pharmaceutical prescription.

Literature surveys suggest that approximately 1.1 % of the general population and 22 % of patients treated at addiction facilities have a history of abuse of gabapentin along with other drugs. Drug users take gabapentin and pregabalin for its euphoric effect and choose the latter for its quicker effect. Pregabalin is very similar to gabapentin (listed together as gabapentinoids). Pregabalin was release by the FDA in 1970 and sold under brand name Lyrica. Pregabalin, as opposed to gabapentin, is listed as addictive. However, many publications on abuse, physical dependency, and addiction indicate that gabapentin and pregabalin are very comparable in the euphoric effects that are desired in the drug dependent population. Deaths have occurred with these gabapentinoids, but usually in conjunction with other drugs, primarily the opioids. In many cases the cause of death was most certainly the opioid, but the toxicology report listed varying concentrations of either gabapentin or pregabalin, as 22% of gabapentin users also use other drugs. Tolerance and withdrawal symptoms (physical dependence) of the gabapentinoids appear to be common in medical and non-medical use of these drugs.

The use of gabapentin with the guidance of a physician for a specific disorder is considered safe and effective. Cases of tolerance are quite common, and cases of addiction are absent in the general population.

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