

Example of lorazepam research paper

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Lorazepam

Introduction

Depression of the central nervous system (CNS) has been a vital technical know-how in the cure of anxiety, increase of sedation, decrease in tension, and curing of insomnia through enhancement of sleep. Similarly, depression of the CNS is believed to produce a continuum effect in the generation of anesthesia and loss of consciousness, which aid in alleviating anxiety (Aschenbrenner & Venable, 2009). In light with this, there are a variety of effects associated with the depression of the CNS, and they are largely attributed to the drugs used as a depressant. Dosage and the route of administration are the core determinants in the variation of the effects (Aschenbrenner & Venable, 2009). Lorazepam is a prototype of benzodiazepines, and it is one of the key drugs, primarily used in treating anxiety. However, it may also be used in promoting sleep and elevate rest.

Indications

Lorazepam, tentatively referred to as Ativan is used in treating anxiety disorders, most frequently in general anxiety disorder (GAD), and preferably for short-term assuagement of anxiety (Aschenbrenner & Venable, 2009). Administration of Lorazepam involves a plethora of processes and facets that amount to different effects and aftermaths. Administration through intramuscular or intravenously preoperatively, before anesthesia, aid in the reduction of patient's ability to recall the events surrounding the surgery, and this is a clear manifestation of reduced anxiety, and an increased production of sedation (Aschenbrenner & Venable, 2009). Oral administration

is also a vital procedure that is immensely useful in the curing and management of chronic insomnia. Further, other selected indications constitute the treatment of status epilepticus or focal seizure, and alcohol withdrawal seizures or syndromes, which are trivially treated in an inpatient setting. Moreover, Lorazepam is also used in anesthetic premedical activities (Aschenbrenner & Venable, 2009).

Dosing

Lorazepam is characterized by a less lipophilic and a longer redistribution half-life, these amounts to a longer duration of action and diminution of urgency for repeated doses. Similarly, the nature of disorder- alcohol withdrawal, anxiety, or focal seizure- also affects the nature of the dosage (Chisholm-Burns, Schwinghammer, Wells, Malone, Kolesar & Dipiro, 2010). Lorazepam is administered as a single IV dose 0.1 milligram per kilogram, with a maximum dose of four milligrams and a maximum rate of infusion of two milligrams per minute (Chisholm-Burns et al, 2010). Besides, it can be dosed every 10 to 15 minutes to attain a maximum dose of eight milligram, until the seizure activity stops, or anticipated side effects occur, for instance respiratory depression (Chisholm-Burns et al, 2010). It is also remarkably indispensable to establish whether the patient is veritable user, to check on addiction, dependency, also to avoid overdosing. Signs of overdosing are depicted through; respiratory depression, dysarthria, somnolence, hypotension and at a critical stage it can amount to a death.

Pharmacokinetics, Onset, Duration and Toxicity

Pharmacokinetics of Lorazepam is similar to other benzodiazepines and the drug is readily absorbed from the gastrointestinal (GI) tract. However, when administered intramuscularly, the rate of absorption is slightly higher. After absorption, the drug is also widely distributed in the body tissue attributed to high lipid solubility, and protein-bound (Aschenbrenner & Venable, 2009). In the same light, the drug contains an immediate speed of onset, especially when administered orally. It is hepatically metabolized giving it an upper hand, when compared to the other drugs under the class of benzodiazepines, which are metabolized through active compounds. The enhanced activation is a tremendous vantage to older adults and patients with liver diseases (Aschenbrenner & Venable, 2009).

In tandem to this, Aschenbrenner and Venable (2009), still assert that intravenous Lorazepam circulates faster to the brain, thus giving an effective measure in treating status epilepticus. Likewise, Lorazepam also redistributes out of the brain slowly, offering an extended protection against further anxiety disorders and seizures. Elimination of excess content of the drug from the body is through urine, significantly ascribed to its high ability to bind with protein molecules. The pharmacodynamics of Lorazepam is similar to the other forms of benzodiazepines, and it steps-up the effects of Gamma- Aminobutyric Acid (GABA) that has a repressive effect on the CNS (Aschenbrenner & Venable, 2009). In the bargain, there are few traces of toxicity in Lorazepam drug. However, they are cases of toxicity from propylene glycol in patients with high and frequent dose of the drug. Acute

intoxication may also occur, if there is a synergistic interaction between the drug and the possible effects of alcohol.

Contraindications and Adverse Effects

Contraindications to administration of Lorazepam involve a plethora of effects, which consists of hypersensitivity, acute narrow-angle glaucoma, intra-arterial use and psychoses. Prolonged administration of Lorazepam produces physical dependency, and it is always accompanied with adverse effects. Conventionally, withdrawal symptoms; vomiting, tremor, headache, muscle cramps, impaired concentrations and seizures, may also surface when the intake of the drug is stopped abruptly (Aschenbrenner & Venable, 2009). According to Aronson (2009), the use of the drug produces a vast range of side effects, which are categorized into organs and systems. Lorazepam may result to respiratory depression, which interfere with the respiratory track, thence a requisition of an artificial ventilation to sustain normal functioning of the system. Adverse effects associated with the nervous system, comprise of; weakness, unsteadiness, sedation, dizziness, disorientation, and impairment of living abilities (Aronson, 2009). Further, effects in relation to psychological and psychiatric aspects constitute maniac-like reaction on withdrawal, delirium, and paradoxical precipitation of tonic seizure or myoclonus in children. The drug also largely contributes to the interference of cognition and psychomotor abilities, hence, making the old population more susceptible to the adverse effects than the youths and the children (Aronson, 2009).

Use in Pregnancy and Withdrawal

The drug also has adverse side effects on pregnant women, with exceptional contrary effects in breastfeeding. According to Aschenbrenner and Venable (2009), the drug is sorted out as a pregnancy category D drug. Presence of the drug has been detected in maternal and cord blood, bespeaking a transfusion or a transfer of the drug from mother to the fetus. Hence, it becomes highly advisable not use the drug for obstetric purposes during labor and delivery (Aschenbrenner & Venable, 2009). Withdrawal of the patient from the drug is quite a technical process, and to prevent withdrawal symptoms when Lorazepam is to be ceased, the drug should be slowly tapered off if, in any case, the patient has been on high dose. During the tapering off period, the severity should be decreased to negligible proportions vis a vis the reduction of the dose. The period should also be accompanied by cognitive-behavioral therapy (Aschenbrenner & Venable, 2009).

Precautions

Series of precautions should be considered to ensure a maximum therapeutic effects and minimum side effects. Daily dosage should be divided into two or three doses and administered throughout the day. This is to achieve a prolonged therapeutic effect (Aschenbrenner & Venable, 2009). For instance, if one of the symptoms of anxiety experienced is insomnia, the largest dose should be administered during bed time. In addition to this, IV solutions of Lorazepam should be protected from light and stored in a refrigerator, to prevent loss of potency (Aschenbrenner & Venable, 2009). Furthermore, the patients, whether old or young, should commence the

treatment with small doses of Lorazepam, to prevent adverse effects. The patient should also be monitored carefully during administration to avoid complications that may arise in the respiratory system. Patients with liver and kidney problems, drugs and alcohol addictions, and other psychiatric disorders should not be put under treatment with Lorazepam, since it may result to severe addiction, respiratory complications, organ failure, and even death.

Instructions for Patients

On the other hand, Patients should receive a better education and well elaborated instructions to avoid complications and adverse effects associated with the intake of the drug. Patients should avoid taking alcohol, and other CNS depressants while on Lorazepam. Similarly, the patients should be aware of drowsiness, sedation, ataxia, and the paradoxical effects (Aschenbrenner & Venable, 2009). The patients should also be encouraged to take the drug with food, if they experience GI distress. Women also should avoid becoming pregnant or breast feed while in on Lorazepam.

Conclusion

Concisely, Lorazepam is one of the most crucial drugs used in treating anxiety disorder, and the learning of the Pharmacokinetics, pharmacodynamics, and pharmacotherapeutics of Lorazepam is an essential step in understanding, the effects and mechanism of the drug, hence preventing fatal side effects of the drug. Similarly, administration of the drug becomes easier, taking into consideration low-levels of toxicity, and the upshots generated upon withdrawal.

References

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