

- **Pregnancy Registry:** If you become pregnant while taking gabapentin capsules, talk to your healthcare provider about registering with the North American Antiepileptic Drug (NAED) Pregnancy Registry. The purpose of this registry is to collect information about the safety of antiepileptic drugs during pregnancy. You can enroll in this registry by calling 1-888-233-2334 or visiting <http://www.aedpregnancyregistry.org/>.
- are breast-feeding or plan to breast-feed. Gabapentin can pass into breast milk. You and your healthcare provider should decide how you will feed your baby while you take gabapentin capsules.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

Especially tell your healthcare provider if you take:

- any opioid pain medicine such as morphine, hydrocodone, oxycodone, or buprenorphine.
- any medicines for anxiety (such as lorazepam) or insomnia (such as zolpidem), or any medicines that make you sleepy. You may have a higher chance for dizziness, sleepiness, or breathing problems if these medicines are taken with gabapentin capsule.

Taking gabapentin capsules with certain other medicines can cause side effects or affect how well they work. **Do not start** or stop other medicines without talking to your healthcare provider.

Know the medicines you take. Keep a list of them and show it to your healthcare provider and pharmacist when you get a new medicine.

How should I take gabapentin capsules?

- Take gabapentin capsules exactly as prescribed. Your healthcare provider will tell you how much gabapentin capsules to take.
- **Do not** change your dose of gabapentin capsules without talking to your healthcare provider.
- **Do not stop** taking gabapentin capsules without talking to your healthcare provider first. If you stop taking gabapentin capsules suddenly, you may develop side effects.
- Gabapentin capsules can be taken with or without food.
- Swallow gabapentin capsules whole with water.
- If you take an antacid containing aluminum and magnesium, such as Maalox, Mylanta, Gelusil, Gavison, or Di-Gel, you should wait at least 2 hours before taking your next dose of gabapentin capsule.
- In case of overdose, get medical help or contact live Poison Control Center right away at 1-800-222-1222. Advice is also available online at poisonhelp.org.

What should I avoid while taking gabapentin capsules?

- **Do not** drink alcohol or take other medicines that make you sleepy or dizzy while taking gabapentin capsules without first talking with your healthcare provider. Taking gabapentin capsules with alcohol or drugs that cause sleepiness or dizziness may make your sleepiness or dizziness worse.
- **Do not drive,** operate heavy machinery, or do other dangerous activities until you know how gabapentin capsules affects you. Gabapentin capsules can slow your thinking and motor skills.

What are the possible side effects of gabapentin capsules?

Gabapentin capsules may cause serious side effects including:

- See **"What is the most important information I should know about gabapentin capsules?"**
- problems driving while using gabapentin capsules. See **"What should I avoid while taking gabapentin capsules?"**
- sleepiness and dizziness, which could increase your chance of having an accidental injury, including falls.

The most common side effects of gabapentin capsules include:

- lack of coordination
- feeling tired
- viral infection
- fever
- feeling drowsy
- jerky movements
- nausea and vomiting
- difficulty with coordination
- difficulty with speaking
- double vision
- tremor
- unusual eye movement
- swelling, usually, of legs and feet

Tell your healthcare provider if you have any side effect that bothers you or that does not go away.

These are not all the possible side effects of gabapentin capsules. For more information, ask your healthcare provider or pharmacist.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store gabapentin capsules?

- Store Gabapentin Capsules at room temperature between 68°F to 77°F (20°C to 25°C).

Keep this and all medication out of the reach of children.

General information about the safe and effective use of gabapentin capsules.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not use gabapentin capsules for a condition for which it was not prescribed. Do not give gabapentin capsules to other people, even if they have the same symptoms that you have. It may harm them. You can ask your pharmacist or healthcare provider for information about gabapentin capsules that is written for healthcare professionals.

For more information go to www.strides.com or call 1-877-244-9825.

What are the ingredients in gabapentin capsules?

Active ingredient: gabapentin

Inactive ingredients: Corn starch, magnesium stearate, mannitol and talc.

The 100-mg capsule shell also contains: gelatin, titanium dioxide, and water.

The 300-mg capsule shell also contains: gelatin, iron oxide yellow, titanium dioxide and water.

The 400-mg capsule shell also contains: FD&C Blue #1, FD&C Yellow #6, gelatin, titanium dioxide and water.

The imprinting ink Green Tek SB 4027 contains shellac, iron oxide yellow & FD & C Blue #1 Aluminum Lake.

The imprinting ink Blue Tek SB 6018 contains Shellac and FD & C Blue #2 Aluminum Lake.

This Medication Guide has been approved by the U.S. Food and Drug Administration.

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Data

Human Data

An observational study based on routinely collected data from administrative and medical records in Denmark, Finland, Norway and Sweden, compared the prevalence of major congenital malformations in approximately 1,500 pregnancies exposed to gabapentin monotherapy in the first trimester to pregnancies exposed to antiepileptics (n=2,958,816) and pregnancies exposed to lamotrigine monotherapy in the first trimester (n=1,563). The adjusted relative risk in a pooled analysis were 1.00 (95% CI, 0.80-1.24) compared to pregnancies exposed to antiepileptics and 1.29 (95% CI, 1.10-1.51) compared to pregnancies exposed to lamotrigine monotherapy in the first trimester.

Data from another observational study in the US based on Medicaid data, which compared the risk for major congenital malformations in more than 4,600 pregnancies exposed to gabapentin during the first trimester to unexposed pregnancies (n=1,753,865), estimated an adjusted relative risk of 1.07 (95% CI, 0.94-1.21). Data from a cohort study of over 200,000 Medicaid-eligible pregnancies with prescription opioid exposure in the last 45 days of pregnancy found that the risk of neonatal drug withdrawal was greater in pregnancies with combined exposure to gabapentin and opioids compared to pregnancies with exposure to opioids alone.

The data from these observational studies should be interpreted with caution due to the potential for exposure misclassification, outcome misclassification, and residual confounding, including by underlying disease.

Animal Data

When pregnant mice received oral doses of gabapentin (500, 1000, or 3600 mg/kg/day) during the period of organogenesis, embryofetal toxicity (increased incidences of skeletal variations) was observed at the two highest doses. The no-effect dose for embryofetal developmental toxicity in mice (500 mg/kg/day) is less than the maximum recommended human dose (MRHD) of 3600 mg on a body surface area (mg/m²) basis.

In studies in which rats received oral doses of gabapentin (500 to 2000 mg/kg/day) during pregnancy, adverse effect on offspring development (increased incidences of hydronephrosis and hypospadias) were observed at all doses. The lowest dose tested is similar to the maximum recommended human dose (MRHD) of 3600 mg on a body surface area (mg/m²) basis.

In a published study, gabapentin (400 mg/kg/day) was administered by intraperitoneal injection to neonatal mice during the first postnatal week. A period of synaptogenesis in rodents (corresponding to the last trimester of pregnancy in humans). Gabapentin caused a marked decrease in neuronal synapse formation in brains of infant mice and abnormal neuronal synapse formation in a mouse model of synaptic repair. Gabapentin has been shown in vitro to interfere with activity of the calcium substrate of voltage-activated calcium channels, a receptor involved in neuronal synaptogenesis. The clinical significance of these findings is unknown.

8.2 Lactation

Risk Summary:

Gabapentin is secreted in human milk following oral administration. The effects on the breastfed infant and on milk production are unknown. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for gabapentin and any potential adverse effects on the breastfed infant from gabapentin or from the underlying maternal condition.

8.4 Pediatric Use

Safety and effectiveness of gabapentin in the management of postherpetic neuralgia in pediatric patients have not been established. Safety and effectiveness as adjunctive therapy in the treatment of partial seizures in pediatric patients below the age of 3 years has not been established (see Clinical Studies (14.2)).

8.5 Geriatric Use

The total number of patients treated with gabapentin in controlled clinical trials in patients with postherpetic neuralgia was 1000, with 60% being 65 to 74 years of age, and 168 (50%) were 75 years of age and older. There was a larger treatment effect in patients 75 years of age and older compared to younger patients who received the same dosage. Since gabapentin is not exclusively eliminated by renal excretion, the larger treatment effect observed in patients > 75 years of age may be a consequence of increased gabapentin elimination in this age group. Results from an age-related decrease in renal function. However, other factors cannot be excluded. The types and incidence of adverse reactions were similar across age groups except for peripheral edema and ataxia, which tended to increase in incidence with age.

Clinical studies of gabapentin in epilepsy did not include sufficient numbers of subjects aged 65 and over to determine whether they responded differently from younger subjects. Other reported clinical experience has not identified differences in response between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

This drug is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and doses should be adjusted based on creatinine clearance values in these patients (see Dosage and Administration (2.3), Adverse Reactions (6), and Clinical Pharmacology (12.3)).

8.6 Renal Impairment

Dosage adjustment in adult patients with compromised renal function is necessary (see Dosage and Administration (2.3) and Clinical Pharmacology (12.3)). Pediatric patients with renal insufficiency have not been studied.

Dosage adjustment in patients undergoing hemodialysis is necessary (see Dosage and Administration (2.3) and Clinical Pharmacology (12.3)).

9. DRUG ABUSE AND DEPENDENCE

9.1 Controlled Substance

Gabapentin is not a controlled substance.

9.2 Abuse

Abuse in the intended, non-therapeutic, use of a drug, even once, for its desirable psychological or physiological effects. Misuse is the intentional use, for therapeutic purposes, of a drug by an individual other than that prescribed by a health care provider or for whom it was not prescribed.

Gabapentin does not exhibit affinity for benzodiazepine, opioid (mu, delta or kappa), or cannabinoid 1 receptors. In a study of healthy adults, the pharmacokinetic parameters (mean steady-state trough serum valence) were higher than recommended doses of gabapentin for unapproved uses. When prescribing Gabapentin Capsules, carefully evaluate patients for a history of drug abuse and observe them for signs and symptoms of gabapentin misuse or abuse (e.g., self-abuse escalation and drug-seeking behavior). The abuse potential of gabapentin has not been evaluated in human studies.

9.3 Dependence

Physical dependence is a state that develops as a result of physiological adaptation in response to repeated drug use, manifested by withdrawal signs and symptoms after discontinuation or a significant dose reduction of a drug. After discontinuation of short-term and long-term treatment with gabapentin, withdrawal symptoms have been observed shortly in some patients. Withdrawal symptoms may occur shortly after discontinuation, usually within 48 hours. In postmarketing setting, reported adverse reactions have included, but not been limited to: seizure, depression, suicidal ideation and behavior, agitation, anxiety, irritability, hostility, aggression, aggression, anxiety, insomnia, nausea, pain, sweating, tremor, headache, dizziness, and nausea. The dependence potential of gabapentin has not been evaluated in human studies.

Signs of acute toxicity in animals included ataxia, labored breathing, seizure, sedation, hypothermia, or excitation.

Acute oral overdoses of gabapentin have been reported. Symptoms have included double vision, tremor, slurred speech, drowsiness, altered mental status, dizziness, lethargy, and diarrhea. Fetal toxicity depression has been reported with gabapentin overdose, alone and in combination with other CNS depressants.

Gabapentin can be removed by hemodialysis.

If convulsion occurs, call your poison control center at 1-800-222-1222.

11 DESCRIPTION

The active ingredient in gabapentin capsules USP is gabapentin, which has the chemical name 1-(aminomethyl)pyrrolidine-2-carboxylic acid.

The molecular formula of gabapentin is C₉H₁₇NO₃ and the molecular weight is 171.24.

The structural formula of gabapentin is:



Gabapentin USP is a white to off-white crystalline powder with a pH of 6.5 - 7.5. It is freely soluble in water and sparingly soluble in methanol.

Each gabapentin capsule contains 100 mg, 300mg or 400 mg of gabapentin and the following inactive ingredients:

Corn starch, magnesium stearate, mannitol and talc. The 100mg capsule shell contains gelatin, titanium dioxide and water. The 300mg capsule shell contains gelatin, iron oxide yellow, titanium dioxide and water. The 400mg capsule shell contains FD&C Blue #1, FD&C Yellow #6, gelatin, titanium dioxide and water. The imprinting ink Green Tek SB 4027 contains shellac, iron oxide yellow & FD & C Blue #1 Aluminum Lake. The imprinting ink Blue Tek SB 6018 contains Shellac and FD & C Blue #2 Aluminum Lake.

12. CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

The precise mechanisms by which gabapentin produces its analgesic and antiepileptic actions are unknown. Gabapentin is structurally related to the neurotransmitter gamma-aminobutyric acid (GABA) but has no effect on GABA binding, uptake, or degradation. In vitro studies have shown that gabapentin binds with high-affinity to the calcium substrate of voltage-activated calcium channels; however, the relationship of this binding to the therapeutic effects of gabapentin is unknown.

12.3 Pharmacokinetics

All pharmacological actions following gabapentin administration are due to the activity of the parent compound; gabapentin is not appreciably metabolized in humans.

Oral Bioavailability

Gabapentin bioavailability is not dose proportional, i.e., as dose is increased, bioavailability decreases. Bioavailability of gabapentin is approximately 60%, 47%, 34%, 33%, and 27% following 900, 1200, 2400, 3600, and 4800 mg/day given in 3 divided doses, respectively. Food has only a slight effect on the rate and extent of absorption of gabapentin (14% increase in AUC and C_{max}).

Distribution

Less than 3% of gabapentin circulates bound to plasma protein. The apparent volume of distribution of gabapentin after 150 mg intravenous administration is 58 L (n = 50). In patients with epilepsy, steady-state plasma (C_{ss}) concentrations of gabapentin in cerebrospinal fluid were approximately 20% of the corresponding plasma concentrations.

Elimination

Gabapentin is eliminated from the systemic circulation by renal excretion as shown in Table 5.

Gabapentin elimination half-life is 5 to 7 hours and is unaffected by dose or following multiple dosing. Gabapentin elimination rate constant, plasma clearance, and renal clearance are directly proportional to creatinine clearance. In elderly patients, renal clearance is directly proportional to creatinine clearance. Plasma clearance is reduced.

Gabapentin can be removed from plasma by hemodialysis.

Specific Populations

Age

The effect of age was studied in subjects 20-80 years of age. Apparent oral clearance (CL_r) of gabapentin decreased as age increased, from about 25 mL/min in those under 20 years of age to about 125 mL/min in those over 70 years of age. Renal clearance (CL_R) and CL_r adjusted for body surface area also declined with age; however, the decline in the renal clearance of gabapentin with age can largely be explained by the decline in renal function. (see Dosage and Administration (2.4) and Use in Specific Populations (8.5)).

Gender

Although no formal study has been conducted to compare the pharmacokinetics of gabapentin in men and women, it appears that the pharmacokinetic parameters for males and females are similar and there are no significant gender differences.

Race

Pharmacokinetic differences due to race have not been studied. Because gabapentin is primarily renally excreted and there are no important racial differences in creatinine clearance, pharmacokinetic differences due to race are not expected.

Pediatric

Gabapentin pharmacokinetics were determined in 48 pediatric subjects between the ages of 1 and 12 years who received a dose of approximately 10 mg/kg. Peak plasma concentrations were similar across the entire age group and occurred 2 to 3 hours postdose. In general, pediatric subjects between 1 month and < 5 years of age achieved approximately 20% lower exposure (AUC) than those observed in the 5 years of age and older. Accordingly, oral clearance normalized per body weight with age can largely be explained by the decline in renal function. (see Dosage and Administration (2.4) and Use in Specific Populations (8.5)).

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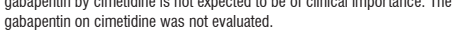
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