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Gabapentin

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**GBPNI**

**Chemical Name**
1-(Aminomethyl)cyclohexaneacetic acid, Cl-945; Go-3450; Go-3450

**Chemical Formula**
C₉H₁₇NO₂

**Molar Mass**
C₉H₁₇NO₂
C = 12.01 g/mol
H = 1.01 g/mol
N = 14.01 g/mol
O = 16.00 g/mol
120.11 g/mol

**Literature Value for Molar Mass**
171.24 g/mol

**Smallest Dose Converted to Molecules**
300 mg of C₉H₁₇NO₂ = 300 mg / 1000 mg of C₉H₁₇NO₂ = 300 mg / 171.24 g of C₉H₁₇NO₂ = 1.75 × 10⁻¹⁰ moles of C₉H₁₇NO₂

**Water Solubility**
water solubility: 6.90 mg/mL
4.490 g/100 mL = 4.490 g/100 mL

**Drug Classification**
Anticonvulsant
GABA Analog

**Trade Names**
Neurontin
Horizant
Gralise

**Generic Name**
Gabapentin

**Ratio of Hydrophilic to Hydrophobic**
2.5

**What Forms Does It Come In?**
Gabapentin is available in the forms of capsules, tablets, and extended-release tablets. The capsule availability comes in 100 mg, 300 mg, and 400 mg. The tablets come in 100 mg, 300 mg, 400 mg, 600 mg, and 800 mg. Extended-release tablets are available in 300 mg and 600 mg.

**What Can It Be Used To Treat?**
Post-Herpetic Neuralgia

**Smallest Tablet Amount**
300 mg of C₉H₁₇NO₂ = 300 mg / 300 mg of tablet = 1 tablet of 300 mg C₉H₁₇NO₂

**What Is The Route and Dosage Amount**
PO Start 300 mg day 1, 300 mg b.i.d. days 2, and 300 mg t.i.d. day 3; may increase up to 600 mg t.i.d. if needed.

**How the Body Takes the Medication**
Gabapentin can be given as a tablet, extended-release tablet, or a capsule orally and needs to be taken whole. It should not be taken with an antacid, but either before or after with a glass of water, and 2 hours between the doses given. It reaches its peak level between 1-3 hours after taken. It is then absorbed and metabolized through the gastrointestinal tract and attaches to plasma proteins in the serum. The highest amounts of gabapentin can be found reaching the pancreas and the kidneys.

**How Does the Body Break It Down?**
Gabapentin is not metabolized or broken down in the body. It remains unchanged after 96 hours.

**How Is It Eliminated?**
Through the elimination process, the body passes between 76-81% of gabapentin through urine. There can be 10-23% found in fecal matter.

**What Does The Body Do With It?**
Gabapentin is a GABA (Gamma aminobutyric acid) neurotransmitter (sends messages to the brain) but does not cause increase or decrease in GABA. It interacts with GABA cortical neurons but there is no known relationship with it as an anticonvulsant.

**Labeled Uses**
Gabapentin's labeled uses are for the treatment of restless leg syndrome and post-herpetic neuralgia. It can also be used as an adjunctive therapy for partial seizures with or without secondary generalization in adults.

**Smallest Tablet Amount**
300 mg of C₉H₁₇NO₂ = 300 mg / 300 mg of tablet = 1 tablet of 300 mg C₉H₁₇NO₂

**Unlabeled Uses**
The unlabeled uses for gabapentin include being used as an additional therapy for generalized seizures, peripheral neuropathy, and migraine prophylaxis.

**Condensed Structure**

**Functional Groups**

**References Used**

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