Meperidine (Demerol)

Meperidine (Demerol) is a strong opioid agonist that works by activating mu receptors in the central nervous system (CNS) and periphery to produce analgesia. This medication is indicated in the treatment of moderate to severe pain and post-anesthesia shivering. Side effects of meperidine include sedation, constipation, CNS depression, and tremors. This medication should be used cautiously in patients with renal failure, as metabolites can accumulate in the kidneys causing toxicity. In addition, meperidine should not be taken with MAO inhibitors, selective serotonin reuptake inhibitors, or tricyclic antidepressants, due to increased risk for serotonin syndrome, coma, and death.

PLAY PICMONIC

Mechanism

Opioid Receptor Agonist
Poppy-droid Receptor Dragonist
This opioid analgesic works by activating mu opioid receptors in the CNS and periphery, producing pain relief, sedation, respiratory depression, cough suppression, and decreased intestinal peristalsis.

Indications

Moderate to Severe Pain
Moderate to Severed Pain-bolt
Meperidine is indicated in the treatment of moderate to severe pain. Frequent dosing may to needed to relieve pain, due to the drug’s short half-life.

Post Anesthesia Shivering
Post A-nest of Anesthesia Shivering
Postanesthesia shivering is a phenomenon believed to be caused by a combination of anesthesia-induced hypothermia, and exposure to the cold environment in the operating room. Meperidine is used as a first-line treatment for postanesthesia shivering, as it is effective in reducing the shivering threshold.

Side Effects

Tremors
Trimmer
Tremors typically indicate an accumulation of a toxic metabolite called normeperidine. Other signs and symptoms of toxicity include seizures, irritability, and dysphoria.

Constipation
Corked Con-toilet
Opioid medications can decrease GI peristalsis and reduce secretion of fluids into the intestines, causing constipation. Laxatives or stool softeners can be used to prevent constipation.

CNS Depression
Deflated CNS-brain
Activation of mu opioid receptors can cause CNS depression, most notably, respiratory depression. Patients should be monitored closely for signs and symptoms of overdose.

Sedation
Sedation-dart
The use of meperidine can cause sedation and should be administered cautiously. Patients should be advised to avoid activities, such as driving while taking this medication.

Considerations

Short Term Administration

Nurse-in-Shorts Administering

To prevent toxicity, patients should take meperidine for less than 48 hours at a time. Dosing should not exceed 600mg/24hrs due to increased risk for toxicity. Because meperidine is less likely to depress fetal respiration and uterine contractions, it is often the preferred opioid for obstetric use.

Increased Risk Serotonin Syndrome

Up-arrow Risk Silver-tonic Savage

When meperidine is taken with MAO inhibitors, selective serotonin reuptake inhibitors, or tricyclic antidepressants, there is excessive activation of serotonin receptors, and decreased reuptake of serotonin. As a result, there is an increased risk for serotonin syndrome, coma and death.

Does NOT cause Miosis

No-sign Mice-eyes

Unlike other opioid medications, meperidine does not cause miosis, or constriction of the pupils.

Renal Failure Increases Toxicity Risk

Dead Kidney Up-arrow Toxic-green-glow

Meperidine should be used cautiously in patients with renal failure, as metabolites can accumulate in the kidneys, causing toxicity.