



## "Pearls"- You knew that we don't recommend Meperidine (Demerol®) but do you understand why?

October 2004

The University of Wisconsin<sup>1</sup> led the way in 1995 with a review of meperidine usage, side-effect profile and complications and recommended deletion of the oral tablet from the hospital formulary and deletion of PCA syringe dosage forms. They developed strict guidelines for its use. Why?

In 2004, the Institute for Safe Medication Practices Canada in a recent safety bulletin has focused on Meperidine. They conclude that there are only three potential uses for Meperidine; in all other situations, it would not be considered the first line opioid.

Oral meperidine is subject to rapid first pass metabolism so that about 300-mg must be given po to equal the analgesic effect 20-mg po morphine! Meperidine is metabolized by two hepatic pathways; the most clinically significant of these produces the active metabolite normeperidine which has half the analgesic effect but 2-3 times the neurotoxic potential. Normeperidine has a long half-life (14-48 hrs) and even longer if there is renal insufficiency. Repeated administration will lead to accumulation of normeperidine and predisposes the patient to neurotoxicity, including seizures.

Meperidine is poorly tolerated in the elderly and is the opioid most often associated with delirium in the geriatric surgical population.

Contrary to urban myth, there is NO specific benefit to meperidine in pain management of biliary colic, pancreatitis, nor sickle cell disease.

ISMP Canada<sup>2</sup> recommends healthcare facilities evaluate their use of meperidine and consider recommendations such as:

1. remove oral meperidine from the formulary
2. restrict the use of parenteral meperidine to only a few clinical situations
  - (a) prevention and treatment of drug-induced or blood product induced rigors
  - (b) treatment of postoperative shivering
  - (c) short term management of pain in individuals with normal renal, hepatic and CNS function where alternative opioids are contraindicated (true documented allergies - this would be very rare) and the use is limited to 48 hr.
  - (d) Therefore, in the palliative population and when controlling pain on a chronic basis, oral Demerol® and Demerol® IM are contraindicated.

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<sup>1</sup> University of Wisconsin Hospitals and Clinics Guidelines for Use of Meperidine

<sup>2</sup> ISMP Canada Safety Bulletin, Volume 4, Issue 8, August 2004.