PROVIDENCE
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Medical Center

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http://www.tarzanacme.com/pharmacy/pharmacy.html

P&T COMMITTEE ACTIONS

FORMULARY: Providence One-formulary
The Providence system has set a goal to have one formulary for all 34 hospitals. To add a medication to this unified formulary or to propose a therapeutic interchange policy requires a presentation to the Providence Formulary Work group (PFW). The PFW includes the pharmacy clinical coordinator from each ministry, and meets to make preliminary recommendations. These recommendations are reviewed locally by affected physicians for comments. These comments are then forwarded to the Providence Formulary Council (PFC) comprised of system wide physicians, pharmacists, and nurses who will vote on the final recommendations, which are then advanced to the local P&T committee for implementation.

POLICY UPDATE: IV Administration Policy

- **Amiodarone (Cordarone®)** – Added DOU
- **Isoproterenol (Isuprel®)** – Added Cardiology department for tilt table procedure
- **Octreotide (Sandostatin®)** – approved for IV infusion in all areas.
- **All beta blockers** – approved for use in Imaging Departments (radiology, CT etc.)
- **Fentanyl, methadone, and lorazepam infusions** – approved for use ONLY by a Palliative Care specialist in all areas for palliative/hospice/terminally ill patients.

MEDICATION SAFETY

MUE (medication utilization evaluation)

Dilaudid® (hydromorphone)

Dilaudid® is the most frequently prescribed analgesic for pain management at PTMC and is also the analgesic most frequently associated with adverse drug reactions. In 2007, education regarding the potency of Dilaudid® and the additive CNS depressive effect when used with benzodiazepines or other sedating medications were done. The prescribing of Dilaudid® in doses greater than 4 mg has decreased; however 2 mg doses prescribed in opioid naïve elderly patients has lead to adverse effects.

From this observation, the P&T committee has the following recommendations: 1) the default dose of Dilaudid® in hospital pre-printed forms will be specified as 0.5 mg instead of a blank line. 2) The Dilaudid® 2 mg strength will be removed from the Pyxis® override list (except on the Oncology unit). This insures that a pharmacist reviews the order before a nurse administers the medication. 3) Potency of Dilaudid® and other narcotics will remain a priority in Continuing Medical Education (CME).

Dilaudid® is 7 times more potent than morphine. Use caution when prescribing to elderly opioid naïve patients.

Dilaudid® 2 mg ≈ morphine 14 mg

Regional Insulin IV Protocol Pilot

The Diabetes committee and the P&T committee have recommended adopting the Regional IV Insulin protocol. **The pilot of this protocol at PTMC will start with one patient in the ICU and CVIUC per day during the months of June and July 2012.**

The MUE for the IV insulin protocol found the following: on the average, the time to reach therapeutic glucose range was about 6 hours and patients were on the therapy for about 3 days; the current PTMC Insulin IV form needed clarifications; and protocol adherence by the staff needed improvements. Components of the

protocol requiring the most improvement are Accucheck done according to the physician order, documenting infusion time at the time of blood glucose result, and correct rate adjustments.

Heparin Anti-Xa Protocol MUE

The effectiveness of the IV Heparin protocol was studied after switching the aPTT to Anti-Xa as the laboratory measurement of heparin therapy. This study showed that the average time to reach a therapeutic heparin effect using Anti-Xa or aPTT was the same (93%). Since aPTT poorly correlates with Anti-Xa heparin activity, the actual patients in the therapeutic range may be higher with Anti-Xa compared to when aPTT was used.

The protocol adherence rate was lower in the new study. Important fallouts from the protocol included the ordering of the 2nd consecutive therapeutic Anti-Xa level, and not achieving laboratory turnaround time of less than 1 hour. The P&T committee recommended additional staff education regarding protocol adherence, and then follow-up protocol assessment.

MEDICATION UPDATE

Evidence lacking for preventing Contrast-Induced Nephropathy (CIN) with N-Acetylcysteine and Sodium Bicarbonate

Contrast-induced nephropathy (CIN) is a leading cause of hospital-acquired acute kidney injury, with the highest risk observed in patients with pre-existing impaired renal function. CIN is associated with the need for dialysis, prolonged hospitalization, increased costs, and mortality.[1,3]

N-acetylcysteine (NAC) has been studied to prevent CIN but due to small study populations (median N $\leq$ 80 patients for most studies) and conflicting results, there is disagreement between guidelines. The hypothesis for renal protection with NAC is via its antioxidant and vasodilatory properties. For sodium bicarbonate, it is urine alkalinization which prevents contrast-induced free radical injury.

The ACT trial was a randomized 2308 patients undergoing an intravascular angiographic procedure with at least 1 risk factor for CIN (> 70 years, renal failure, diabetes mellitus, heart failure, or hypotension). This study found that NAC does not reduce the risk of CIN.[2] A large meta-analysis (2746 patients – 22 trials) found a similar conclusion.[3]

A study with 258 patients with renal insufficiency undergoing intravascular contrast procedures found that a 24 hour infusion of IV sodium chloride 0.9% was superior to sodium bicarbonate IV infusion.[4] Other studies including a large meta-analysis (2290 patients – 14 trials) also found sodium bicarbonate IV infusion showed no benefit compared to a sodium chloride 0.9% IV infusion.[5,6,7]

Shortages of NAC and IV sodium bicarbonate have been present on and off since 2011. Reasons for the shortages are market based, with the major manufacturer discontinuing production, and inadequate capacity in the remaining producers. The shortages are additional compelling reasons not to use these modalities. The P&T committee recommends removing NAC from the hospital pre-printed order form to reflect current guidelines and not to use sodium bicarbonate as a prophylactic agent.

ACCF/AHA/SCAI PCI Guidelines 2011.[1]

1. NAC is <u>not useful</u> for the prevention of CIN (Class-III Level of Evidence: A).
2. The only strategies shown to reduce the risk of CIN are hydration and minimizing the amount of contrast media used (Class-I Level of Evidence: B).

Level of evidence

Class I: Benefit >>> Risk (SHOULD be performed)
Class III: No Benet (Treatment NOT be used)
Level A: Multiple large randomized clinical trials or meta-analysis
Level B: Data from a single randomized trial or nonrandomized studies

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