Hosp Pharm 2013;48(11):892–898

www.hospital-pharmacy.com
doi: 10.1310/hpj4811-892

ISMP Medication Error Report Analysis

End Hepatitis B

Confusion With PCC Orders

Help to Prevent Catheter Misconnections

GlycoTrol or Glucotrol?

Heparin Label Placed on Wrong Bag

Michael R. Cohen, RPh, MS, ScD,[*] and Judy L. Smetzer, RN, BSN[†]

These medication errors have occurred in health care facilities at least once. They will happen again—perhaps where you work. Through education and alertness of personnel and procedural safeguards, they can be avoided. You should consider publishing accounts of errors in your newsletters and/or presenting them at your inservice training programs.

Your assistance is required to continue this feature. The reports described here were received through the Institute for Safe Medication Practices (ISMP) Medication Errors Reporting Program. Any reports published by ISMP will be anonymous. Comments are also invited; the writers' names will be published if desired. ISMP may be contacted at the address shown below.

Errors, close calls, or hazardous conditions may be reported directly to ISMP through the ISMP Web site (www.ismp.org), by calling 800-FAIL-SAFE, or via e-mail at ismpinfo@ismp.org. ISMP guarantees the confidentiality and security of the information received and respects reporters' wishes as to the level of detail included in publications.

END HEPATITIS B

Everyone should consider omitted doses of hepatitis B vaccine for newborns to be serious medication errors. The Immunization Action Coalition (IAC) is urging the nation's birthing institutions to "give birth to the end of hepatitis B" and is asking all of its partners to get involved in promoting administration of the hepatitis B vaccine shortly after birth.

Babies and young children are not able to fend off hepatitis B virus infection as well as adults, and they are in danger of getting hepatitis B virus from infected mothers at birth. Experts agree that hepatitis B can be eliminated in the United States; preventing the transmission of the virus at birth is fundamental to this effort. Yet, despite expert consensus, nearly 1 in 3 US newborns leaves the hospital unvaccinated against hepatitis B and approximately 800 US newborns become chronically infected each year because of perinatal exposure. This would not happen if a vaccine birth dose was part of a standard order set and universally administered before hospital discharge. Follow-up with a total of 3 or 4 doses at properly spaced intervals would help more than 95% of infants, children, and adolescents develop lifelong immunity to the hepatitis B virus.

Complete information and resources can be found on IAC's Web site (www.immunize.org/protect-newborns/).

*President, Institute for Safe Medication Practices, 200 Lakeside Drive, Suite 200, Horsham, PA 19044; phone: 215-947-7797; fax: 215-914-1492; e-mail: mcohen@ismp.org; Web site: www.ismp.org. [†]Vice President, Institute for Safe Medication Practices, Horsham, Pennsylvania.

If your hospital has an obstetrical unit, please discuss this topic at an appropriate committee meeting to ensure that babies are given this critically important vaccine at birth.

CONFUSION WITH PCC ORDERS

If you received an order for "prothrombin complex concentrate" or "PCC," would you know for sure what the prescriber wanted? For that matter, would the prescriber really know what he or she was ordering? There are multiple products referred to as prothrombin complex concentrate. Searching a database or the medical literature can easily lead people down the wrong "coagulation pathway."

A new product, *Kcentra*, has been approved by the US Food and Drug Administration (FDA) for urgent reversal of acquired coagulation factor deficiency induced by vitamin K antagonist therapy (eg, warfarin) in adult patients with acute major bleeding. *Kcentra* is a 4-factor product that contains factors II, VII, IX, and X. The product's proper name is prothrombin complex concentrate, even though that term has also been used to refer to factor IX complex (*Profilnine SD, Bebulin VH*), a combination of factors II, IX, and X. Additionally, *Feiba NF* (anti-inhibitor coagulant complex [human]) is sometimes called "activated PCC," so it is possible the prescriber wants to order that product.

If "prothrombin complex concentrate" or "PCC" is ordered rather than the specific brand name, the order must be clarified. Determine in advance which of these reversal products will be on the formulary and make sure physicians, nurses, and pharmacists are aware of the ambiguous nature of the terms "prothrombin complex concentrate" and "PCC." Educate practitioners about the proper use of each of these agents and periodically review this information. Develop order sets that clearly identify which product is being ordered and avoid using "prothrombin complex concentrate" or the abbreviation "PCC" on order sets.

Incidentally, there is apparent interest in using *Kcentra* for reversal of bleeding from the direct thrombin inhibitor dabigatran (*Pradaxa*) and the direct factor Xa inhibitors rivaroxaban (*Xarelto*) and apixaban (*Eliquis*). However, a review in *The Medical Letter on Drugs and Therapeutics*[1] noted that effectiveness is unclear. Studies in animals and healthy human volunteers have produced some conflicting results, and clinical data on the issue are limited.

HELP TO PREVENT CATHETER MISCONNECTIONS

A significant patient safety hazard that ISMP has repeatedly covered over the years has been misconnections between various catheters, syringes, and tubing used in health care. These misconnections have sometimes resulted in unintentional administration of irrigations, instillations, injectables, or oral solutions by the wrong route of administration, sometimes causing death.

Think about all the ongoing problems where a drug like vincristine, meant for intravenous use, was given intrathecally or an enteral feeding was given intravenously. Most of these incidents are related to the Luer connector, which allows these incompatible systems to be connected. Now, thanks to the combined efforts of the device industry, regulators, and other experts, within a year we will begin to see connectors that conform to new standards that will render direct misconnections nearly impossible.

Standards for enteral feeding connectors, neuraxial catheters, tubing connectors for administering gases, and connectors for limb cuff inflation applications have all been set; once they are fully tested, manufacturers will begin to incorporate the new connectors. These changes are ambitious and will have a huge impact on patient care in hospitals.

To spread the word and help foster awareness of these forthcoming changes, the Association for the Advancement of Medical Instrumentation (AAMI) has created a Web page about this effort to eliminate this significant source of patient harm (www.ismp.org/sc?id=229). The changes are a welcome addition to improve patient safety. We highly recommend that health professionals and hospital committees stay on top of these efforts by reviewing the background information on this Web site and consulting the site often for updates.

GLYCOTROL OR GLUCOTROL?

A patient was discharged from a hospital to a long-term care (LTC) facility with the dietary supplement "Glycotrol" listed among the medications she had taken at home. At the LTC facility, the product was communicated as *Glucotrol* (glipizide), an antidiabetic agent.

No doubt, many would see (or hear) *GlycoTrol* as *Glucotrol,* given their nearly identical names, and assume that the drug name was misspelled. That's evidently what happened in this case. The patient's LTC physician prescribed *Glucotrol*, believing the patient had taken the drug prior to hospitalization. The patient became hypoglycemic, which required readmission to the hospital.

Several strategies might have helped to prevent this error. During the hospital medication reconciliation process, the patient's compiled list of home

medications should have included an indication or use for each drug. If "dietary supplement" had been included as a use, the prescriber may have been alerted that the drug was not *Glucotrol*. Yet, the *GlycoTrol* label states, "supports healthy blood sugar," so a reference to "blood sugar" may still have led to confusion between *GlycoTrol* and *Glucotrol*.

The home medication list also should have included the dose and frequency of each medication. At best, the directions for use of the dietary supplement would only include the number and frequency of tablets. The absence of a specified strength for "Glycotrol" should have prompted questions, particularly since *Glucotrol* is available in more than one strength.

Finally, all clinicians should verify that a patient is diabetic before administering an antidiabetic agent. Although these steps may have prevented the error, we call upon Lidtke Technologies, maker of *GlycoTrol*, to change the name of its product to prevent mix-ups.

HEPARIN LABEL PLACED ON WRONG BAG

By chance, a potentially harmful error was averted even after a bedside barcode-scanning system verified an incorrect product. Heparin 120 units in 250 mL of 0.45% sodium chloride had been prescribed for an infant in the neonatal intensive care unit (NICU). The order was entered into the computer; after being verified by a pharmacist, a label was printed via the neonatal/pediatric label printer. A mix-up when sorting labels at the adult and pediatric printers led to the application of the heparin 120 units/250 mL label to a bag of heparin 25,000 units/250 mL in 5% dextrose, which had been internally compounded due to a drug shortage.

This bag in this case had 2 labels—a pharmacy-applied label listing heparin 25,000 units in 5% dextrose on one side and a patient-specific pharmacy-applied label listing heparin 120 units in 0.45% sodium chloride on the other side. The error was not noticed during the final checking process in the pharmacy, and the bag was dispensed to the NICU. The nurse happened to scan the label on the bag that stated 120 units in 0.45% sodium chloride and thought she had confirmed the correct product, never noticing the heparin 25,000 units/250 mL in 5% dextrose pharmacy label on the other side of the bag. She prepared the bag for infusion and then asked another nurse to independently check the product. The second nurse read the patient-specific label that stated heparin 120 units/250 mL and verified the patient and drug. The usual checking process did not include looking at both sides of the IV bag. Fortunately, the 25,000 unit bag of heparin swung around as the nurse went to begin the infusion, during which she noticed the second label, and the error was captured before the drug reached the patient.

Along with providing staff with education and awareness about the event, the hospital where the error occurred decided to affix yellow auxiliary warning labels to both sides of compounded bags of heparin 25,000 units/250 mL to promote recognition of their contents. We would also suggest a thorough review of pharmacy compounding workflow—including label sorting, verification, and application. Some organizations print duplicate labels to affix to both sides of a bag or bottle, taking care not to cover important manufacturers' label information. Likewise, we have long recommended that manufacturers print labels on both sides of bags or bottles, but so far, only Hospira has done this and only for a single product—lidocaine premixed solutions. Additional recommendations broadly applicable to sterile compounding can also be found in our Guidelines for Safe Preparation of Sterile Compounds document.[2]

REFERENCES

1. Kcentra: A 4-factor prothrombin complex concentrate for reversal of warfarin anticoagulation. *Med Lett Drugs Ther*. 2013;55(1420):53-54.

2. Rich DS, Fricker MP, Cohen MR, Levine SR. Guidelines for the safe preparation of sterile compounds: Results of the ISMP Sterile Preparation Compounding Safety Summit of October 2011. *Hosp Pharm*. 2012;48:282-294. ■