
Volume 15 - Issue 2, 2015 - Cover Story

Institute for Safe Medication Practices

Targeted Best Practices Outline Top Medication Safety Issues

Hospitals and health systems around the globe that are deciding what to focus their medication safety efforts on can gain input from the Institute for Safe Medication Practices (ISMP). In 2014 ISMP celebrated the 20th anniversary of its founding, and reflected on the feedback that it has received through its voluntary national reporting programme on medication errors and hazardous conditions, and what lessons can be learned from that information.

Certain medication errors that cause harm or are fatal to patients continue to recur in the United States and around the world, despite repeated warnings from ISMP and other organisations. ISMP launched the 2014-15 Targeted Medication Safety Practices for Hospitals to identify, inspire and mobilise widespread national and international action to address these recurring problems (ISMP 2013a).

The 2014-15 best practices identify a group of key safety issues, and provide realistic, high-leverage strategies for error prevention. ISMP intends implementation of the best practices to be a collaborative effort at hospitals; success hinges on cooperation between health professions. While they are primarily targeted for the hospital-based setting, some of the best practices may be applicable to other healthcare settings.

The 2014-2015 best practices have already been adopted by many U.S. healthcare organisations (ISMP 2015). Following are those that are most applicable to the European healthcare community.

Best Practice - Vinca Alkaloids

Dispense vincristine (and other vinca alkaloids) in a minibag of a compatible solution and not in a syringe.

Rationale

The goal of this best practice is to ensure that vinca alkaloids are administered by the intravenous route only. Vinca alkaloids (vinBLASTine, vinorelbine, vinCRISTine, and vinCRISTine liposomal) can cause fatal neurological effects if given via the intrathecal route instead of intravenously. VinCRISTine is particularly problematic, and the most frequently reported, because it is often ordered in conjunction with medications that are administered intrathecally (eg methotrexate, cytarabine, and/or hydrocortisone). When vinca alkaloids are injected intrathecally, destruction of the central nervous system occurs, radiating out from the injection site. The few survivors of this medication error have experienced devastating neurological damage. The U.S. product labelling also carries a special warning ("For Intravenous Use Only—Fatal If given by Other Routes"). Despite this warning and repeated warnings by various national and international safety agencies, deaths from this type of error still occur.

An effective prevention strategy that reduces the risk of inadvertently administering vinca alkaloids via the intrathecal route is to dilute the drug in a minibag that contains a volume that is too large for intrathecal administration (eg 25 mL for pediatric patients and 50 mL for adults) (Polovich et al. 2014).

Many U.S. healthcare organisations, including paediatric hospitals, have successfully switched to preparing vinca alkaloids in minibags, overcoming concerns of extravasation and other complications. There have been no reported cases in the U.S. of accidental administration of a vinca alkaloid by the intrathecal route when dispensed in a minibag. It is important to note that this best practice is supported by the World Health Organization (2007).

Best Practice - Oral Methotrexate

a) Use a weekly dosage regimen default for oral methotrexate. If overridden to daily, require a hard stop verification of an appropriate oncologic indication.

- For manual systems, require verification of an appropriate oncologic indication before dispensing oral methotrexate for daily administration.

b) Provide patient education by a pharmacist for all weekly oral methotrexate discharge orders.

- Ensure that written drug information is given to patients that contains clear instructions about the weekly dosing schedule.

- Explain to the patient that taking extra doses is dangerous.

- Have the patient repeat back the instructions to ensure that the patient understands the weekly dosing schedule and that the medication is not to be used "as needed" for symptom control.

- Provide the patient with a copy of the free ISMP high-alert medication consumer leaflet on oral methotrexate (ISMP 2014).

Rationale

The goal of this best practice is to prevent errors involving inadvertent daily dosing of oral methotrexate both in the inpatient setting and after discharge. Since early 1996, and as recently as 2013, fatal errors have been reported to ISMP about the accidental daily dosing of oral methotrexate that was intended for weekly administration.

Methotrexate is a folate antimetabolite used to treat different types of cancers. Since the drug's introduction, its labelled indications in the U.S. have expanded to include non-oncology uses. It is now used to treat a variety of autoimmune diseases (eg psoriasis, severe rheumatoid arthritis, lupus) and other disorders. In the U.S., many hospitals have reported to ISMP that the nononcology use of this product is greater than its use for oncological indications. It should be noted that this best practice still applies to hospitals that specialise in cancer treatment only, since patients may still receive this drug for non-oncological reasons.

When used for immunomodulation to treat disorders such as rheumatoid arthritis, the drug is administered weekly or twice a week. Prescribing errors occur when physicians, who are familiar with prescribing many medications for daily administration, erroneously prescribe this medication daily instead of weekly. Dispensing errors occur in much the same way, when pharmacy technicians and pharmacists inadvertently select/approve daily instead of weekly administration during order entry or order verification.

Best Practice - Oral Liquids

Ensure that all oral liquids that are not commercially available as unit dose product are dispensed by the pharmacy in an oral syringe

- Use only oral syringes marked "Oral Use Only."
- Ensure that oral syringes used do not connect to any type of parenteral tubing used in the hospital.
- Use of an auxiliary label "For oral use only" is preferred, since the print on the oral syringe is small, if it does not obstruct critical information.

Rationale

The goal of this best practice is to prevent the unintended administration of oral medications via the intravenous route. ISMP continues to receive reports in which patients were inadvertently given an oral liquid medication intravenously. This happens most often when an oral liquid is prepared extemporaneously or dispensed in a parenteral syringe that connects to vascular access lines. Such errors have resulted in patient death.

Fatalities have also occurred when the contents of liquid-filled capsules (eg niMODipine) were withdrawn for oral administration via a nasogastric or other tube with a parenteral syringe and then inadvertently administered intravenously. The oral syringe tip is designed to be incompatible with vascular lines so it cannot be inadvertently attached.

It should be noted that the key feature of this best practice is to dispense this product in unit dose, rather than in bulk dosage forms, so nurses will not draw up the oral solution using a parenteral syringe. Dispensing the product in unitdose cups or bottles from the pharmacy is acceptable, although the use of an oral syringe is preferred. Oral solutions should never be dispensed from the pharmacy in a parenteral syringe.

Best Practice - Glacial Acetic Acid

Eliminate glacial acetic acid from all areas of the hospital.

ISMP recommends removing and safely discarding this product from all clinical areas of the hospital (including the pharmacy, clinics, and physician office practices), and replacing it with vinegar (5% solution) or commercially available, diluted acetic acid 0.25% (for irrigation) or 2% (for otic use). Laboratory use could be excluded if the lab purchases the product directly from an external source.

Rationale

The goal of this best practice is to prevent harm from the use of glacial acetic acid applied directly to patients (ISMP 2013b). The use of hazardous chemicals in pharmacy compounding, or for special therapeutic procedures and diagnostics, is common in many U.S. hospitals. Patient harm has occurred when toxic chemicals have been misidentified as oral products, or when a very concentrated form of a chemical has been erroneously used in treating patients.

Of particular concern is glacial acetic acid. Accidental topical application of "glacial" (greater than or equal to 99.5%) acetic acid has repeatedly resulted in serious patient harm, including severe pain and serious tissue damage, third-degree burns, and in one case bilateral leg amputation. Often in these cases, this item was either accidentally purchased or used in place of a much more diluted form of acetic acid, such as vinegar or a commercially available 0.25% acetic acid solution.

Based on comments ISMP has received from U.S. hospitals, there is rarely any requirement for pharmacy to have to compound a strength of acetic acid from glacial acetic acid. If required, there should be an investigation of the evidence demonstrating the true need for that particular strength.

Conclusion

ISMP strongly encourages adoption of these practices in all hospitals. The Institute has conducted baseline surveys to determine how they are being incorporated and to collect information on any potential barriers.

ISMP plans to release its 2016-17 Targeted Medication Safety Practices for Hospitals at the end of 2015. A survey of the implementation status of the current set of best practices in U.S. hospitals will be conducted in the late summer of 2015 to help determine which will be continue to be highlighted and how many new practices will be added.

Key Points

- ISMP's targeted Medication Safety Practices for Hospitals provide consensus-based strategies for issues that continue to cause fatal and harmful errors.
- topics for the 2014-15 best practices include safe use of IV vinCRISTine, oral methotrexate, oral syringes, and glacial acetic acid.
- For more information or to download a complete copy of ISMP's 2014-15 Targeted Medication Safety Practices for Hospitals, go to: www.ismp.org/tools/bestpractices

Published on : Mon, 11 May 2015