Oxytocin Errors

Intravenous (IV) oxytocin is often used to induce, stimulate or increase labor during delivery. In the postpartum phase, IV oxytocin generates uterine contractions to help deliver the placenta and to control postpartum bleeding or hemorrhage. However, errors in oxytocin administration can cause excessive stimulation of the uterus which can result in fetal distress, an emergency cesarean section, uterine rupture as well as maternal, fetal or neonatal death.

The following table summarizes common causes of oxytocin errors and strategies to prevent them.

ERRORS with OXYTOCIN	STRATEGIES TO DECREASE ERRORS
PRESCRIBING ERRORS	
Selection of the wrong drug in order entry systems, particularly when searching using only 3 letters "PIT", "OXY" or "OXY10" could bring up Pitressin instead of Pitocin (brand name for oxytocin) and oxycontin (oxycodone).	• Increase the number of letters required (minimum of five) for drug searches in computer order entry systems. This would facilitate only one drug name appearing in the results. • Require prescribers to include the indication for the drug on all orders. • Utilize standard order sets including administration requirements, patient monitoring, treatment of adverse events and other safety measures.
LOOK-ALIKE DRUG PACKAGING and NAMES	
Confusion with drugs packaged in **look-alike vials** such as ondansetron (4 mg/2 mL) which is distributed in clear vials with green caps similar to oxytocin. These drugs are also stored alphabetically in close proximity to one another on pharmacy shelves.	• Assess vial/infusion bag packaging prior to use (or purchase) to ensure they do not resemble other vials or bags currently in use. • Check that the label is clear regarding the amount of drug per total volume. • If there are medications with similar packaging, and the drug cannot be purchased from a different manufacturer, use auxiliary labeling on all vials, bags, bins, and warn users about the risk. • Store look-alike drugs in separate pharmacy and patient care storage locations. • Utilize barcode scanning.
Look-alike drug names such as Pitressin (the generic of vasopressin), has been discontinued but may still be found in some order entry systems. Verbal orders for Pitressin have been misheard as Pitocin.	• Remove outdated brand names, including Pitressin, from computer order entry systems. • Avoid using abbreviations such as "PIT" for either Pitocin or Pitressin or "OXY" for oxytocin or oxycodone/oxycontin. • Avoid using verbal orders except in emergency cases or under sterile conditions.
PREPARATION ISSUES	
Oxytocin infusions may be prepared on patient care units which may result in sterility errors.	• Request pharmacy to provide ready-to-use IV bags of oxytocin that are labeled on both sides of the bag.

Reference

1. Institute for Safe Medication Practices. (2020). *Nurse Advise-ERR.* Retrieved from Institute for Safe Medication Practices: http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR202002pdf

Issues arise when not labeled clearly, completely, and accurately. Errors may also arise when oxytocin is left at the bedside for future use and then accidentally administered.	• Do not bring medications to the patient's bedside until prescribed or needed. • If oxytocin must be prepared at the bedside in an emergency, require a double check of the infusion bag and use preprinted labels.
ADMINISTRATION MISTAKES	
IV line mix-ups and misconnections to the incorrect infusion pump can result in errors. Causes include: • Multiple IV lines • Chaotic work environment • Understaffing/heavy workload • Not tracing IV lines • Inexperienced Staff • Distractions	• Utilize smart infusion pumps with a dose error-reduction system. Smart pumps that communicate with electronic health records can potentially decrease programming errors. • Label oxytocin IV tubing above the injection port closest to the patient as well as just above the pump. • Trace the IV from the infusion bag to the pump and from the pump to the patient. • Use independent double checks to verify the setup of IV lines.
Infusion bag mix-ups between oxytocin and hydrating fluids or magnesium infusion. Failure to scan the barcode on the infusion bag due to urgency is a contributing factor.	• Require barcode scanning on oxytocin vials and infusion bags before preparing, dispensing, stocking, and administration.
Inconsistency in terminology used to indicate oxytocin infusion rate in the order, medication administration record or pump library. • Concentration is expressed as milliunits per milliliter (mL) or units per liter. • Infusion rate is expressed as the amount of drug (milliunits/minute) and as the volume of solution to be infused (mL/hour). The various terminologies can lead to infusion pump programming errors.	• Standardize the concentration and bag size for both antepartum and postpartum oxytocin infusions (i.e. 30 units of oxytocin in 500 mL of Lactated Ringer's). • Standardize how oxytocin doses, concentrations, and rates are communicated. Document oxytocin infusion orders by dose rate (i.e. milliunits/minute) to decrease possibility of misunderstanding. • Coordinate oxytocin dosing units and concentration with the smart pump dose error-reduction system.
Accidental bolus from residual drug (up to 10 mL) left in IV tubing. Drug can also accumulate in dead spaces of needleless ports and stopcocks.	• When oxytocin is discontinued, remove and dispose of any unused portion of the infusion and change the IV line to ensure no residual oxytocin is left in the tubing.
COMMUNICATION ISSUES	
Unclear or incomplete communication and documentation during transitions of care can lead to mistakes.	• Institute clear communication and documentation procedures. • Use standardized strategies and tools during transitions of care.

Reference

1. Institute for Safe Medication Practices. (2020). *Nurse Advise-ERR.* Retrieved from Institute for Safe Medication Practices: http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR202002pdf