



Anesth Essays Res. 2014 Sep-Dec; 8(3): 407–409.

PMCID: PMC4258964

doi: [10.4103/0259-1162.143166](https://doi.org/10.4103/0259-1162.143166)

Vanishing bowl of local anesthetics: A lesson for sterile labeling

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Abstract

It is well known that labelling is crucial in anesthetic practice. Syringe and drug preparation errors accounted for 452 (50.4%) incidents in the Australian Incident Monitoring Study database. We report a unique potential event of possible wrong route administration of medications where a bowl of local anaesthetics was mistakenly taken to the surgical trolley. This incident serves as lesson for practicing sterile labelling and identifying anaesthetic trolley.

Keywords: Medication error, labeling, sterile field

INTRODUCTION

Medication error is a leading cause of adverse event in the operating room.[1] It is well-known that labeling is crucial in anesthetic practice. Syringe and drug preparation errors accounted for 452 (50.4%) incidents in the Australian Incident Monitoring Study database.[2]

In a recent survey of European Anesthesiology Departments, only 62% of the departments used standardized drug syringe labeling and mostly without following an international standard.[3] Systems like double checking are now in place to reduce the wrong route administration of medications. However, most labeling of drugs occurs before an anesthetist washes his hands for procedures like plexus block or central venous catheterization. We hardly label bowl of drugs in plexus blocks or central venous catheterization. Do we do sterile labeling routinely?

CASE REPORT

A 22-year-old male scheduled for left clavicle plating was planned for left interscalene block using nerve locator. Bupivacaine 0.5% 10 ml, lignocaine 2% 15 ml and lignocaine 2% with adrenaline 10 ml was poured into a sterile steel bowl. For some reason, it took more than 10 min to locate the plexus and initial 10 ml injection was made. When the second anesthetist turned to draw up the remaining local anesthetic solution into the syringe the bowl had vanished. Surgical and anesthetic trolleys looked alike and the nursing assistant had promptly taken this bowl perceiving it contained saline or cleaning spirit. Luckily this was identified and this sponge of local anesthetic was not used during surgery. Subsequently, more drugs were freshly drawn and injection completed. Surgery continued uneventfully with adequate analgesia of interscalene block without the patient suffering any untoward effects.

REVIEW OF LITERATURE

In the Australian Incident Monitoring Study, syringe and drug preparation errors accounted for 452(50.4%) incidents. 18.9% incidents involved syringe swaps where the drug was correctly labeled, but given in error

and 20.8% incidents were due to selection of the wrong ampoule or drug labeling error. The outcomes included major morbidity in 42 (4.7%), death in 3 (0.3%) and awareness under anesthesia in 40 (4.4%) incidents. Contributing factors included inattention, haste, drug labeling error, communication failure and fatigue. Factors minimizing the events were prior experience and training, rechecking equipment and monitors capable of detecting the incident. Labeling errors are potentially the easiest “system failure” to correct.[2]

Unlabeled solutions and medications during sterile procedures can result in serious medication errors.[4] Chlorhexidine injected instead of contrast media in radiological suite leading to patients death and use of hydrogen peroxide instead of local anesthetic have been reported. Accidental injection of intrathecal injection of glutaraldehyde resulting in death and lidocaine instead of contrast medium during angiography leading to a grand mal seizure has been reported. Contrast medium instead of lidocaine infiltrated around an injection site for local anesthesia just prior to angiography resulting in local tissue damage has been reported.[5] In another case, a 7-year-old boy was mistakenly injected with 100 times the intended dose of epinephrine in the sterile field.[4] Cardiac arrest ensued and he died the next day.

DISCUSSION

Color coding of local anesthetic syringes and infusions have been put in place. Local anesthetic drug syringes are coded with grey labels.[6] However, labeling or color coding is not routinely done to bowl of local anesthetics when giving plexus blocks. Similarly, we hardly label bowl of drugs during central venous catheterization.

The Joint Commission of USA recommends labeling both on and off sterile field whenever medication is transferred from original packaging to another container and whenever the drug is not immediately administered.[7] A similar guideline is in place in Australia.[8] However, in practice, most labeling occurs before the procedure and once anesthetist washes his/her hands and wears gloves for a procedure labeling almost never occurs.

Anesthetic drug container mistakenly transferred to surgical trolley is extremely rare. The incident in our case is unique in that, significant time delay and similar looking anesthetic and surgical trolleys predispose to such an incident during plexus blocks. Although this incident was of no consequence, it would have led to deficient aseptic precaution if this was deemed to be cleaning spirit. If this bowl of local anesthetic was used to mop a vascular area during surgery mistaking it as saline, this would have led to intravascular absorption of local anesthetics with serious consequences. It would be extremely difficult to identify the cause of a cardiac arrhythmia if this bowl of local anesthetic was indeed used to mop a surgical area later.

But, do we do sterile labeling routinely? Ethylene oxide preprinted sterilized labels must be available in every Anesthetic Department to facilitate aseptic labeling of syringes or bowls used for anesthesia procedures like regional blocks and central venous catheterization. Although it is difficult to label the drugs once anesthetist wears gloves for a sterile procedure, sterile marking pens and blank sterile labels are available, as are preprinted sterile labels.[4] Labeling must occur at the time drugs are prepared and prelabeling of empty syringes and containers is not acceptable.[9]

We suggest while performing plexus blocks, the habit of decanting local anesthetics into a bowl be discouraged. Even if drugs are directly drawn to the syringes without decanting to a bowl, large volumes of local anesthetics used and significant time delays in plexus blocks would necessitate labeling of these syringes. Routinely double checking is employed to prevent medication error. We suggest that during procedures like plexus blocks and central venous catheterizations, before any drug is administered, the anesthetist must check loudly with another anesthetist or assistant that sterile syringes are labeled. This would constitute a sort of “triple check” for sterile labeling. Furthermore, to prevent confusion with surgical trolleys, anesthesia trolleys can be distinguished if sterile covers used for procedural anesthetic trolleys have a different color say: White, gray, or yellow.

SUMMARY

This incident represents a near miss and unique potential event of possible wrong route administration of medications in anesthesia practice. The habit of decanting local anesthetics into a bowl be discouraged. We

need to label syringes of local anesthetics or other drugs and practice sterile labeling during plexus blocks. Existing guidelines for labeling may need to be modified to include sterile labeling where such guidelines do not exist. Wall posters must be put in place in theatres for sterile labeling in plexus blocks and central venous catheterizations.

Footnotes

Source of Support: Nil

Conflict of Interest: None declared.

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