



Look-Alike Drugs-‘A Wonder or a Blunder’?

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Dear Editor,

Drug administration can be a precarious process in inexperienced hands. Inadequate operation theatre experience or insufficient familiarity with the drug delivery devices, lack of plentiful supervision, or limited knowledge about drugs being administered can all lead to administration of incorrect drugs to the patient. Even in experienced hands, sometimes multiple factors dominate over common sense and expertise- like fatigue, sheer carelessness or poor communication with the team, haste in an emergency, poor labeling of drug, or distraction, which can lead to erroneous administration of drugs to the patient. Reduced number of iatrogenic errors has always been an indicator of excellence in anesthesia practice, and a significant area of errors slithers in from prescribing medication that looks or sounds like an entirely different medication.

There are standards of color coding in anesthesia for cylinders, gas pipelines, intravenous cannulas to ensure the safety of the patients, but alas, similar measures have not been developed to prevent wrong administration of look-alike drugs. In fact, different manufacturers use their own will in labeling drugs, which may be accidentally misleading- for example morphine sulfate may be confused with morphine sulfate extended-release. Similarly, dexamethasone may be confused as dextromethorphan, oxycodone as oxycontin or tramadol as trazodone. In these circumstances, a standard naming and packaging of drugs become imperative, especially when different manufacturers manufacture multiple different drugs in the same name, for example “Medzole” for midazolam, pantoprazole and metronidazole, esomeprazole, itraconazole, albendazole, etc. (Figure 1). The errors are not just limited to oral or intravenous administration. Many errors have also occurred as drug administration in the intrathecal space, for example tranexamic acid ampoule looks strikingly sim-

ilar to heavy bupivacaine, and has been administered accidentally in the intrathecal space (1), leading to catastrophic results.

According to 8th annual MEDMARX data report published by United States pharmacopeia, there were 1470 different drugs, which are implicated in causing medication errors due to similar brand and generic names and compiled a list of 3170 look alike and sound alike drugs (2).

The fear of administration of the wrong drug is not only limited to due to similar labeling however, due to the similar appearance of ampoules and vials too. This is very common practice in anesthesia to pick similar looking ampoules from the drug desk. When tired or during the wee hours of an emergency duty, even the most conscientious anesthetist can get unmindfully caught in such a situation. The mishaps of this nature have been seen since, ages and it continues to be even reported in literature today (3). Confusion between drugs arises from similar labeling and packaging, color and size of ampoules, names of drugs, strength and dosage forms, clinical use and frequency of administration and incomplete knowledge of drug names.

The wrong drug administered as a result of human error can lead to complete therapeutic failure, serious toxicity, and unwarranted side effects and may even be fatal for the patient. Simple vigilance is the minimum basic step in avoiding any errors in the operation theater (OT) and the intensive care unit (ICU). Often, the drug errors that occur in the operating room cannot be reversed. However, prevention is the best cure for such lethal effects that can occur because of drug administration. The following strategies can be considered for preventing such errors. Many disasters can be prevented if we have a standardized system of coding, for example color coding of different classes of drug ampoules according to an agreed national or international standard. Contents of labels on am-



Figure 1. Multiple different drugs in the same name that manufactured by different manufacturers

poules and vials should be legible and must be standardized for font, size, and color. Appropriate instructions from drug regulatory authorities should be made and followed at all places. Labels should be periodically checked for any tear, removed label, or wrongly placed vial or ampoule (4). There should be a closed loop verbal communication involving the drug name and concentration made before administering the drug between the drugs providers in OT (technician or resident) with the anesthetist in charge of the case. The drug should be drawn by the same resident who labels the syringe. It is desired that drugs should be checked independently and verbally verified before filling the syringe. Strict legible and bold labeled organization of drug drawers should be considered with attention to the position of ampoules and vials. Similar or dangerous drugs should be segregated. Uncommonly used dangerous drugs should be separated from the commonly used drugs. Timely internal audits by a specific team (drug safety officer and/or a pharmacist) to recheck organization of drugs and names should be employed. Similar packaging and presentation of drugs should be avoided and banned for further procurement by the hospital, where possible. Use upper case letters to emphasize differences in medications with sound-alike names to aid in distinguishing between the two. e.g., amLODIPine, amiTRIPTY-Line, morphine, HYDRomorphine, etc. (5). Avoid abbreviations of drug names e.g. Atr for Atropine or, Atr for Atracurium (muscle relaxant), creating confusion. Only pre-decided ampoules should be kept for the case and re-counting should be done at the end of each case to identify any medication errors and to take measures to avoid future errors. Errors in intravenous drug administration due to look-alike drugs should be reported and reviewed. There should be time to time audits to minimize such errors. These errors can be reduced and eliminated by reducing physician working hours in OT due to the fact that many such errors are bound to happen by a resident who

is fatigued or sleepy because of prolonged working hours. Training residents, especially the newer trainees, should be supervised by senior personnel in OT.

Despite advancement in anesthesiology principles and management, drug errors are known to occur in operation theaters and ICU setting. Some of the drug errors are minor, but some can cost a patient's life. Errors creeping from look-alike drugs can be easily prevented by vigilance, surveillance, standardized coding, and protocol along with a simple habit of reading the drug name twice before loading the drug in the syringe.

Footnotes

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