EDITORIAL

Better look twice – medication errors in anaesthesia and how to avoid them

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In this issue of the “Revista Española de Anestesiología y Reanimación”, Gómez-Arnau et al have published the Recommendations on labelling of injectable drugs administered in anesthesia issued by the Spanish Society of Anesthesiology, Resuscitation and Pain Therapy (Sociedad Española de Anestesiología y Reanimación, SEDAR)1.

Medication error is a problem in modern healthcare, which is of utmost importance. There are numerous studies on the incidence as well as on the impact of these medication errors on patient safety2,3. This holds true for almost all sub-specialties in medicine. Anesthesia and intensive care medicine are two very sensitive parts in this context since the substances we inject are usually quite potent drugs, and patients in these fields are often at their most vulnerable.

In anesthesia, the rate for severe medication errors has been reported to be as high as one incident in 133 anesthetic cases4. In a study by Fasting et al. 4.9% of medication errors in anesthesia were classified as moderately severe and 4.8% as serious5. Factors which significantly contributed to these medication errors were similar appearance of drugs, inattention and haste in the provider as well as “failure of communication” in cases where more than one member of staff was involved6. Misidentification of the label represents 46% of anaesthetic drug errors and the majority of anesthetists considered the colour of the label to be the most important factor in identifying a drug7. It is therefore with good reason, that the Helsinki Declaration on Patient Safety in Anesthesiology, jointly launched by the European Board (EBA) and the European Society of Anesthesiology (ESA) in 2010, requests protocols for syringe labelling8.

Modern anesthesia has reached a considerable high standard with regard to technical equipment and safety-profile of the drugs in use, but we still do face the problem of giving the wrong drug to the wrong patient or injecting the correct drug in the correct patient but into the wrong port (for example: antibiotics injected into epidural catheters instead of intravenously). How come that we still have to deal with these issues?

Medication error is a complex issue reflecting the multiple steps necessary to give a certain drug in the correct manner: it ranges from the physician ordering the correct drug in the appropriate dose, taking contraindications into account, the correct storage of the drug, preparation, labelling, perhaps dilution and finally administering this drug to the correct patient. This shows clearly that the medication process as such is a very complex process. Working conditions with often a high workload and stress and sometimes limited human resources add negatively to these challenges.

There are several strategies to reduce medication errors available. They range from the simple recommendation of “trying harder” to sophisticated technical tools, such as electronic systems facilitating the process of ordering drugs (using radio frequency integration technology – RFIT for example).

One strategy on the human performance side of actions lies in the so called double-check or ‘four-eye-check’, i.e. have all i.v. drug administration to be checked by two qualified practitioners. This has explicitly been recommended for example in a White Paper issued in the United Kingdom (UK)9. Several papers suggest that the number of medication errors can be significantly reduced by double-checking10-12. A systematic review of different strategies to prevent these medication errors during the process of anesthesia found that double-checking could have prevented up to 58% of these errors10.

The challenge for anesthesia and intensive care medicine remains, where the feasibility of this double-checking process is questioned. Critics argue with time pressure of the professionals as well as the lack of sufficient staffing in our daily working environments. A study conducted by Evley et al. in the National Health Service (NHS) in the UK has looked into the feasibility implementing routinely double-checking in anaesthesiology13. They concluded that the introduction of a two-person confirmation of the correct drug in anesthesia would have a significant impact on the existing resources.

A slight modification of this principle of double-checking drugs by two persons is the double-check by one person: checking the ampoule intended to be injected, drawing up this ampoule into a syringe and checking this ampoule again after drawing it up. This would mean to check this ampoule on two occasions but by only one person: a simple and cost-effective interpretation of the double-checking principle.

Other strategies are more technical but nevertheless rather effective. The UK NHS has found that a remarkable number of critical incident reports deal with cases where
drugs have been injected into inappropriate ports. This potential error is supported by the fact that universal Luer-connectors exist where syringes fit to everything - to every needle type (be it an injection needle or a spinal needle intended for subarachnoid anesthesia) and to every catheter port. Therefore, the NHS has requested the following action to be taken by all NHS hospitals: “By 1 April 2012 healthcare organisations should have completed actions to ensure that all spinal (intrathecal) bolus doses and lumbar puncture samples are performed using syringes, needles and other devices with connectors that cannot also connect with intravenous equipment”14.

The industry promptly has reacted to this request and in the meantime, some companies are ready to deliver the NHS hospitals with spinal needles and syringes that are NOT Luer-fit.

On a more systematic level, another feasible tool to prevent drug errors lies in standardization of the labels attached to the syringes.

In our daily practice, a plethora of different labelling systems have been developed and set in place, differing between hospitals, departments but sometimes even differing within one department. It may be that an anesthesiologist is confronted with three different layouts for the same drug in the OR, the intensive care unit or in the emergency department. This diversity of layouts is a threat to the safe administration of drugs, especially when practitioners act under pressure. A standardisation of these layouts is therefore highly recommended.

In countries such as the United States (in 1994) or Canada (in 1999) such standards of labelling of injectable drugs have already been established15,16. In parallel, the UK and Ireland has recommended the implementation of a standard in labelling syringes for use in anesthesia, intensive care and other critical care areas, including Accident and Emergency Departments in May 200317. In 2009 the German Society of Anaesthesiology (DGAI) has recommended the use of the International Standard ISO 26825, which describes the labelling of drugs used in anesthesia18.

With the publication of its recommendations on labelling of injectable drugs SEDAR therefore fully meets internationally acclaimed standards. This is certainly an important step forward to an improvement in safe anesthesia care and another step in order to comply with the requested actions written down in the Helsinki Declaration on Patient Safety in Anesthesiology.

REFERENCES