IS IT TIME TO STOP BEING RELAXED ABOUT NEUROMUSCULAR BLOCKERS?

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BACKGROUND

Medication errors are common and costly:

- £66 million clinically significant errors per year in the NHS
- Cost \$42 billion per year worldwide (1,2)

Anaesthesia is a high-risk specialty for medication errors:

- These are the 2nd commonest category of incidents reported
- **Neuromuscular blockers (NMB)** reported to be the **commonest** class of drugs involved in **anaesthetic** with the **greatest degree of harm (3,4)**

Global focus:

World Health Organisations (WHO) 'Third Global Patient Safety Challenge - Medication Without Harm'

- Reduce severe harm caused by medications by 50% worldwide, over next 5 years (1)

AIMS

- To review the National Reporting and Learning System (NRLS, UK) for **medication errors** relating to NMB
- To **understand** why they occur
- What measures could **prevent** them
- **TO CREATE SOLUTIONS TO IMPROVE PATIENT SAFETY**

METHODS

We submitted a request to the NRLS, UK for data on incidents occurring between **1st January 2012** and **31st December 2016**. Search terms are displayed in the table below:

Category	Description
Categorical:	Location (level 2) is equal to Emergency department, OR Location (level 3) is equal to Operating theatre or Intensive care, AND Medication Error Category is equal to Wrong drug \ medicine, OR 'Wrong drug' free text search produced a hit
Free text filters:	'Muscle relaxant' free text search All terms searched in the following fields IN07 Description of what happened IN10 Action Preventing Reoccurrence IN11 Apparent Causes MD05 Approved name MD06 Proprietary name MD30 Approved name MD31 Proprietary name Free text search based on list of the following terms (includes misspells) Mivacurium, Cis-atracurium, Atracurium, Pancuronium, Rocuronium, Vecuronium, Suxamethonium, Muscle relaxants 'Wrong drug' free text search All terms searched in the following fields IN07 Description of what happened IN10 Action Preventing Reoccurrence IN11 Apparent Causes IN05_Text Incident Category Free text search based on the following terms (including misspells) Swap (the) syringe, swapped (the) syringe, syringe swapped, syringe was swapped, syringe had been swapped, wrong drug adminis*, adminis* (the) wrong drug

Data was reviewed and analysed according to:

1. Incident Category
2. Process Error
3. Degree of Harm
4. Location of Care (OR, ICU and ED)

RESULTS

97 medication incidents reported that met criteria (figure 1)

- 75 in OR
- 22 in ICU
- 3 in ED

(three double counted as errors of storage & admission)

Awake paralysis was the **commonest incident** category:

- 37 incidents
- 24 involved administration of Suxamethonium to an awake patient

Drug preparation error was the **commonest error process** in OR
Syringe swap was the **commonest error process** in ICU

Suxamethonium instead of fentanyl commonest error (figure 2)

Figure 1; Medication error by category

Figure 2; Intended v Administered Medication

DISCUSSION

1. **Standardisation** of syringe sizes
2. **Red plungered** syringes
3. **Prefilled** syringes
4. **National standardisation** of packaging, storage, and preparation
5. **Barcode** technology

References

1. World Health Organization. Medication Without Harm 2017.
2. [Medication Errors in The NHS in England](http://www.eepru.org.uk/), <http://www.eepru.org.uk/>
3. *Anaesthesia and Intensive Care*. 2017; **45**: 28-35
4. *Pennsylvania Patient Safety Authority* 2009; **6**: 109-115