



An Audit of Perioperative Anaphylaxis Testing at RBWH: 2015 - 2020

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INTRODUCTION & AIMS

Perioperative anaphylaxis is an acute and potentially fatal systemic hypersensitivity reaction that can be triggered by a variety of agents. We conducted a retrospective clinical audit of perioperative anaphylaxis cases at our institution to define the presenting clinical features of each episode and the identity of the triggering agents determined by skin testing. Furthermore, we were able to estimate the incidence of each triggering agent as being a cause of anaphylaxis after determination of its overall usage during the audit period.

METHODS

The records of patients referred to the RBWH Anaesthetic Allergy Testing Service in the 6 year period from 2015 to 2020 were audited to obtain details of the clinical presentations and triggering agents identified by standard intradermal injection testing as per ANZAAG guidelines. The number of exposures to an agent during the audit period was estimated using the Automatic Anaesthetic Record Keeping (AARK) records and pharmacy inventory records. If a particular agent was used more than once during a single anaesthesia encounter, this was still defined as one exposure to the agent.

RESULTS

A total of 70 patients underwent allergy testing. An identifiable trigger was found in 61.4% (43/70). The presenting anaphylactic grades of these 43 patients are displayed in Figure 1. Their clinical features are also summarised in Figure 2.

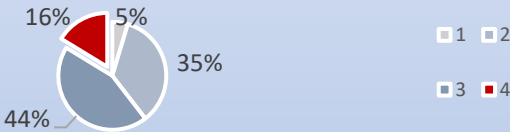


FIGURE 1 – GRADE OF PERIOPERATIVE ANAPHYLAXIS

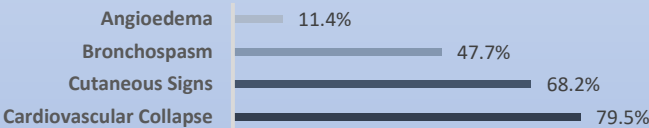


FIGURE 2 – CLINICAL FEATURES OF ANAPHYLAXIS

The most common triggering agents were muscle relaxants 55.8% (24/43) and antibiotics 27.9% (12/43) of positive results. Table 1 summarises our findings. Rocuronium 44.2% (19/43) and Cephazolin 23.3% (10/43) were the two most prominent individual triggers. When expressed according to frequency of use, Patent Blue Dye (1:640), Ampicillin (1:1969), Protamine (1:2159) and Cisatracurium (1:2246) showed higher incidence when compared with Rocuronium (1:2600).

CONCLUSION

Muscle relaxants accounted for most of the perioperative anaphylactic events in our RBWH patient population. However, accounting for the frequency of use, Patent Blue Dye carries the highest risk of anaphylaxis in the perioperative setting. Cisatracurium was shown to have the highest incidence among neuromuscular blocking drugs while Ampicillin was the most common causative agent among the antibiotics.

Triggering Agent	Occurrence	Number of exposures* during 2015-2020	Incidence Rate
Patent Blue Dye	2	1280	1:640
Ampicillin	2	3938	1:1969
Protamine	1	2159	1:2159
Cisatracurium	2	4491	1:2246
Rocuronium	19	49401	1:2600
Suxamethonium	3	11277	1:3749
Cephazolin	10	71766	1:7177
Ondansetron	2	69912	1:34956
Chlorhexidine	2	178217	1:89109
Atracurium	0	246	
Mivacurium	0	221	
Vecuronium	0	994	

* Exposure is defined as the use of an agent within a single anaesthetic case (if an agent was administered multiple times during one anaesthetic, it was still counted as one exposure)

TABLE 1 – ESTIMATED INCIDENCE RATES OF PERIOPERATIVE ANAPHYLAXIS