

A Local Study on Anaphylactic Reactions Occurring during Anaesthesia in Hong Kong

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- Objective: To review and study the characteristics, presentations and workup results of cases referred to a local allergy clinic during 2012-2016
- Background:
 - Diagnosis and workup for intraoperative anaphylaxis is known to be challenging
 - Multiple drugs are usually given prior to the event.
 - Identifying the culprit allergens does facilitate patient care and future anaesthesia planning
 - There is scarcity in review and data on local intraoperative anaphylaxis in Hong Kong
- A retrospective review on the patient referrals and workup results referred to Queen Mary Hospital Drug allergy clinic during 2012-2016 was performed.
 - Patients with suspected allergic event during perioperative period, including anaphylactic or anaphylactoid reactions in operating theatre or recovery room were included in the analysis

Summary of workup of intraoperative anaphylaxis cases in general anaesthesia

	All (n=55)	Anaphylaxis during induction (n=35)	Anaphylaxis during maintenance (n=14)	Anaphylaxis during recovery (n=6)	p value
Age (median, range)	60 (19–88)	60 (23–76)	62 (19–88)	57 (19–79)	0.732
Gender, male	25 (45.5%)	14 (40%)	6 (42.9%)	5 (83.3%)	0.163
Previous anaesthesia	24 (43.6%)	11 (31.4%)	8 (57.1%)	5 (83.3%)	0.030
Clinical manifestation					
Bronchospasm	25 (45.5%)	19 (54.3%)	5 (35.1%)	1 (16.7%)	0.179
Hypotension *	48 (87.3%)	33 (94.3%)	13 (92.9%)	2 (33.3%)	0.002
Skin rash or flushing	26 (47.3%)	15 (42.9%)	6 (42.9%)	5 (83.3%)	0.200
Tryptase elevation	34/48 (70.8%)	21/32 (65.6%)	11/14 (78.6%)	2/2 (100%)	0.538
Allergy workup					
Allergen identified by Skin test	39/51 (76.4%)	25/33 (75.8%)	9/12 (75%)	5/6 (83.3%)	1.000
Allergen identified by SIgE	8/49 (16.3%)	6/30 (20%)	1/13 (7.7%)	1/6 (16.7%)	0.748
Allergen identified by BAT	17/52 (32.7%)	8/33 (24.2%)	7/14 (50%)	2/5 (40%)	0.187
Composite allergy diagnosis	43/55 (78.2%)	26/35 (78.8%)	11/14 (78.6%)	6/6 (100%)	0.546
Causative agents identified	N=52; 43 cases	N=33; 26 cases	N=13; 11cases	N=6; 6 cases	--
Neuromuscular blockers	20 (38.4%);15 cases	18 (54.5%);13 cases	1 (7.7%); 1 case	1 (16.7%); 1case	
Non-depolarizing agents	11	9	1	1	
Depolarizing agents	9	9	0	0	
Antibiotics (b lactams)	14 (26.9%)	10 (30.3%)	3 (23%)	1 (16.7%)	
Other medications					
Midazolam	3 (5.5%)	3 (8.6%)	0 (0%)	0 (0%)	
Esomeprazole	1 (1.8%)	1 (2.9%)	0 (0%)	0 (0%)	
Ondansetron	3 (5.5%)	0 (0%)	1 (7.7%)	2 (28.6%)	
Gelofusine	7 (12.7%)	0 (0%)	6 (46.2%)	1 (14.3%)	
Other chemicals	4 (7.3%)	1 (2.9%)	2 (15.4%)	1 (14.3%)	
Chlorhexidine	1	0	0	1	
Latex	1	0	1	0	
Patent blue dye	2	1	1	0	
Subsequent anaesthesia	13 (23.6%)	10 (28.6%)	3 (21.4%)	0	
Allergic event	0	0	0	0	NA

Cases of anaphylaxis induced during non-general anaesthesia (GA) procedures

Gender	Age	Previous surgery	Type of reaction	Tryptase	BAT	SIgE	Skin test	Subsequent anaesthesia
F	33	0	Cutaneous	NT	-	-	syntocinon	No
F	70	3	Cutaneous, hypotension	NT	-	chlorhexidine	chlorhexidine	No
F	78	2	Bronchospasm	NT	gelofusine	-	NT	No
M	69	0	Cutaneous, bronchospasm	+	-	-	gelofusine	No
M	69	1	Cutaneous, hypotension	NT	-	chlorhexidine	chlorhexidine	No

Contrast of tryptase positive and negative intraoperative anaphalaxis

	Tryptase		p value
	Positive (N=35)	Negative (N=14)	
Allergy workup			
Positive skin test	28 (80%)	6 (43%)	0.017
Positive Sig E	6 (17.1%)	0 (0%)	0.157
Positive BAT	15 (42.8%)	0 (0%)	0.002
Composite allergy diagnosis on workup	31 (88.6%)	6 (43%)	0.002

Conclusion:

- Skin tests are sensitive test in the workup for intraoperative anaphylaxis
- There was correlation between tryptase elevation and the allergy workup.
- Patients presented with unexplained refractory shock or clinical evidence of acute bronchospasm. Anesthesiologist should always bear in mind of anaphylaxis as possible differential diagnosis.
- A comprehensive allergy assessment integrating clinical history, skin tests and blood tests by relevant specialist would be important for patients with intraoperative anaphylaxis in consideration of future anesthesia.

THANK YOU

Acknowledgement:

Dr Eric Chan, Dr Lam Ki, Ms Clara Lo, Division of Clinical Immunology, Department of Pathology, QMH

Prof C S Lau, Department of Medicine, The University of Hong Kong