

CLINICAL INVESTIGATION

UK anaesthetists' perspectives and experiences of severe perioperative anaphylaxis: NAP6 baseline survey[†]

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Abstract

Background: There is limited information on UK anaesthetists' perspectives and experiences of perioperative anaphylaxis. This baseline survey of the Sixth National Audit Project (NAP6) aimed to identify relevant departmental preparedness and practices, and individual experiences, perceptions and drug-avoidance patterns.

Methods: All anaesthetists in 356 UK NHS hospitals were invited to complete an electronic survey.

Results: 11 104 anaesthetists (77% crude response rate) from 341 (96%) hospitals responded. Most had immediate access to guidelines for anaphylaxis treatment (87%) and established referral pathways for investigation (82%), but a minority reported access to designated treatment packs (37%) or an anaphylaxis lead (35%). Anaesthetists reported 1734 cases of suspected perioperative anaphylaxis in 2014–5 of which 81% were referred for specialist investigation and 14% reported to the Medicines and Healthcare Products Regulatory Agency (MHRA). In their career, 76% of respondents had seen a case of perioperative anaphylaxis (1:7.25 years of practice) and 4% reported a death (1:311 years of practice), equivalent to 2.3% of events being fatal. Agents most frequently perceived to cause anaphylaxis were antibiotics, particularly penicillins, and neuromuscular blocking agents, notably rocuronium. Suxamethonium and penicillins were avoided by a higher proportion of respondents than events attributed to these drugs whereas the converse was true for atracurium and teicoplanin.

Conclusions: This is the largest ever survey of anaesthetists' practices and experiences relating to perioperative anaphylaxis. It identifies gaps in preparedness and referral for further investigation and to the UK MHRA. It provides important data about drugs implicated in such events and anaesthetists' attitudes to anaphylaxis.

Key words: adverse effects; anaesthesia; anaphylaxis; hypersensitivity; risk reduction behaviour

Anaphylaxis is a severe, life-threatening generalized hyper sensitivity reaction¹ and is one of the most hazardous emergencies encountered in the perioperative setting. Despite its

importance, there is limited published information on UK anaesthetists' perspectives and experiences of perioperative anaphylaxis.

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Editor's key points

- Perceptions and experiences of anaesthetists with perioperative anaphylaxis are not well documented.
- A national audit of UK anaesthetists identified that most have encountered severe anaphylaxis, but that further investigation and referral to national registries is inconsistent.
- There is a mismatch amongst UK anaesthetists in perception of risks, drugs implicated, and avoidance practices in anaphylaxis.

In 2009, the Association of Anaesthetists of Great Britain and Ireland (AAGBI) published guidance on suspected perioperative anaphylaxis.² This document recommended that anaesthetists refer patients to a specialist allergy centre for investigation via a locally agreed referral pathway. A recent multi-centre audit suggested that patients were not being appropriately referred for investigation.³ In addition, the guideline advised anaesthetists to report cases of perioperative anaphylaxis to a national database, such as the UK Medicines and Healthcare Products Regulatory Agency (MHRA). It would also be expected that cases would be reported to the local hospital incident-reporting system.

The perception of anaphylaxis risk is likely to influence anaesthetic practice, but little is known about which agents anaesthetists associate with being at high risk of inducing anaphylactic reactions. The limited prevalence studies available have indicated that the most frequently implicated causative drugs are antibiotics and neuromuscular blocking agents (NMBAs),⁴ but little is known about what precautions anaesthetists take to avoid anaphylactic reactions and the degree, if any, to which perceived anaphylaxis risk drives clinical practice. Current perioperative practice increasingly exposes patients to chlorhexidine and newer drugs, such as sugammadex, and it is unclear how much risk these agents pose in view of emerging evidence of their association with anaphylaxis.^{5,6} The use of an antibiotic 'test dose' is actively discouraged in published guidelines but the degree to which this practice persists has not previously been examined.

The National Audit Projects are a series of service evaluations examining major complications related to anaesthesia, run by the Royal College of Anaesthetists (RCoA).⁷ The Sixth National Audit Project (NAP6) is designed to prospectively examine quantitative and qualitative aspects of severe perioperative anaphylaxis. NAP6 comprises four components: a baseline survey of anaesthetists; a survey of specialist allergy clinics; a year-long, anonymized case-reporting phase; and lastly a survey of anaesthetic activity and exposure to potential perioperative allergens. This article describes the baseline anaesthetic survey.

The survey was undertaken in order to understand current practice and compliance with published guidance. It explores current systems for reporting, referral and management of cases of suspected perioperative anaphylaxis. The survey also examines anaesthetists' practices, perceptions of causative agents and experiences of severe perioperative anaphylaxis. The baseline survey was not intended to characterize the incidence of perioperative anaphylaxis, which is investigated by the separate case-reporting phase of NAP6.

Methods

The NAP6 project was confirmed to be a service evaluation by the National Research and Ethics Service; therefore, formal ethics approval was not required. The project was endorsed by all UK Chief Medical Officers and approved by UK statutory patient data security bodies.

All 356 participating hospitals in England, Wales and Northern Ireland appointed a volunteer local-co-ordinator (LC) anaesthetist who was responsible for reporting the number of anaesthetists within their centre, and took responsibility for advertising and disseminating the survey and recording completion rates. The survey was in the form of a hospital-based 'organizational survey' sent to the LC at each centre and an electronic questionnaire for individual anaesthetists accessible from November 5, 2015 to January 11, 2016 (see Supplementary data, Appendix 1).

Respondents were asked to provide details about departmental systems for reporting and referral of perioperative anaphylaxis and to describe their attitudes and perceptions of high-risk causative agents and of any avoidance practices. Anaesthetists were also asked to record details of suspected agents, referral and outcomes of any cases of suspected perioperative anaphylaxis (defined as a hypersensitivity reaction with severe hypotension and/or bronchospasm and/or swelling with actual or potential airway compromise and excluding minor reactions or harmless transient cutaneous flushing as an isolated feature) they had treated in the previous year. To avoid double reporting, respondents were requested to specify those cases for which they had been the most senior anaesthetist involved in the case, and separately, those cases where they had been called to assist with management.

Continuous data were described using median [Interquartile range (range)] and categorical data using 95% confidence intervals for Poisson distribution. Due to the observational nature of the survey, no statistical comparison was required.

As the response rate was high, no adjustment was made for missing data due to non-responders. Unanswered questions in the data set were highlighted as missing values rather than discarding the entire response or using imputation, which was not appropriate for this survey.

For estimating the number of new cases of perioperative anaphylaxis included in this survey we used the responses to Question 1, which referred to cases directly under the respondents' care. For all other questions, we used the reports of all cases of anaphylaxis the respondents had attended (i.e. attendances at anaphylaxis events), either as the primary anaesthetist or assisting a colleague. We used data from NAP5 in 2013 (3 598 500 anaesthetic interventions; including 2 766 600 general anaesthetics) as the denominator for the number of anaesthetic interventions delivered in the UK.⁸ This was adjusted for the survey response rate, to estimate the reported incidence of perioperative anaphylaxis in the 12 months preceding the survey. It is recognized that retrospective recall is not as reliable as prospective data collection; therefore, the main focus of this survey was not to calculate incidence but rather to assess attitudes and practice ahead of the prospective data collection period of the NAP6 project.

Results

Responses were received from 341 hospitals (96%). The organizational survey identified 14 495 anaesthetists working in the UK—8522 Consultants, 1761 Specialty and associate specialist

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