ELSEVIER

ORIGINAL ARTICLE

Underestimating the size of the problem? UK anaesthesia for patients with obesity

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Summary We analysed data from 14,000 patients in the 2013 United Kingdom Anaesthesia Activity Survey of the Fifth National Audit Project of the Royal College of Anaesthetists and Association of Anaesthetists of Great Britain and Ireland to examine anaesthetic, organisational and clinical practice for patients with obesity. We compared practice then with current guidance on management of this patient group.

Obesity was reported in 22%, mainly Black, Afro-Caribbean and White Caucasian patients. There was minimal variation in surgical timing, anaesthetic seniority, induction location or day-case procedure rates.

As BMI increased above 25 kg m^{-2} ASA grade rose and there were modest changes in practice towards that recommended for this patient group. Some practice changes were counter-intuitive. When BMI exceeded 35 kg m^{-2} safety based practice changed markedly. For patients receiving GA there was an increase in immediate (operative) mortality as BMI rose.

UK anaesthetic practice in 2013 appears to underestimate patient levels of obesity, does not reflect recent published guidelines for the management of patients

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with obesity undergoing anaesthesia and, taken with the mortality findings, raises concerns over the reliability of safe management of such patients.

Introduction

It is not known how care for the obese in the UK differs from the non-obese and two recent national audits of anaesthetic complications highlighted obesity as a risk factor for airway problems and accidental awareness during general anaesthesia [1,2]. In 2013 a detailed anaesthesia activity survey took place [3] as part of the 5th National Audit Project of the Royal College of Anaesthetists and Association of Anaesthetists of Great Britain and Ireland (NAP5). We analysed these data to examine anaesthetic management of adult patients with obesity and where possible to assess conformity with recent guidelines on the peri-operative management of the obese surgical patient published in March 2015 by the Association of Anaesthetists of Great Britain and Ireland (AAGBI) and the Society for Obesity and Bariatric Anaesthesia (SOBA) [4] (see Fig. 1).

Methods

In 2013, as part of the NAP5 project, an Anaesthesia Activity Survey (AAS) was carried out to measure annual caseload of anaesthetic activity in the United Kingdom National Health Service (NHS). The full method for the AAS is published elsewhere [3], but in summary, each NHS hospital in the UK was represented by a local coordinator (LC) who coordinated the survey on any patient who had any procedure under the care of an anaesthetist: this included general anaesthesia (GA), sedation, or the monitored care of an awake patient. Data were captured on a single sided A4 paper questionnaire and read automatically by 'optical character recognition' technology. The form had 30 questions and explanatory notes to help completion.

Data collection took place on two consecutive days within the chosen week (9th–16th September 2013) with the chosen days randomised between trusts. A scaling factor (180.68) converted the number of forms returned from two days into an estimated number of cases for a whole year (i.e. annual caseload). Caseloads were rounded to the nearest 100, so that an estimated annual number of 200 or 400 represent 1 or 2 forms respectively.

The median estimated return rate was 98% (IQR 0.95–1). Calculations were made using Microsoft Excel 2010 and the 'PivotTable' facility. Blank, uninterpretable and missing answers were discarded; analysis and results relate only to interpretable forms.

Children (<16 years) and obstetric patients were excluded from the current analysis because of difficulty in applying the AAGBI-SOBA Guidelines to children and concerns about accuracy of the BMI data in the obstetric population. Obstetric patients were identified from caesarean section categories as well as the 'obstetric' surgical specialty.

The body mass index (BMI) classes used on the survey form were: unknown, underweight (BMI < 18.5 $kg\,m^{-2}$), normal weight (BMI 18.5–24.9 $kg\,m^{-2}$), overweight (BMI 25–29.9 $kg\,m^{-2}$), obese (BMI 30–34.9 $kg\,m^{-2}$), morbidly obese (BMI $\geq$ 35 $kg\,m^{-2}$) [3]. For this paper we use the term 'obese' to refer to all patients with BMI $\geq$ 30 $kg\,m^{-2}$ and 'non-obese patients' to refer to all patients with BMI < 30 $kg\,m^{-2}$. Where differences exist between practices in patients with a BMI >35 $kg\,m^{-2}$ compared with other groups, this is specified.

Results

There was BMI data from 96.6% of patients (14,093) so total annual caseload for analysis was 2,546,500 of whom 1,216,900 (47.8%) had normal BMI and 571,000 (22.4%) were obese (15.1% BMI 30–34.9 $kg\,m^{-2}$ and 7.3% a BMI $\geq$ 35 $kg\,m^{-2}$).

Age, sex, ethnicity and ASA

Sixty one percent of patients with obesity were female. Ethnicity was recorded in over 99% of