Largest Ever Study of Awareness During General Anaesthesia Identifies Risk Factors and Consequences for Patients, Including Long-Term Psychological Harm

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Accidental awareness is one of the most feared complications of general anaesthesia for both patients and anaesthetists. Patients report this failure of general anaesthesia in approximately 1 in every 19,000 cases, according to a report published in Anaesthesia. Known as accidental awareness during general anaesthesia (AAGA), it occurs when general anaesthesia is intended but the patient remains conscious. This incidence of patient reports of awareness is much lower than previous estimates of awareness, which were as high as 1 in 600.

The findings come from the largest ever study of awareness, the 5th National Audit Project (NAP5), which has been conducted over the last three years by the Royal College of Anaesthetists (RCoA) and the Association of Anaesthetists of Great Britain and Ireland (AAGBI). The researchers studied 3 million general anaesthetics from every public hospital in UK and Ireland, and studied more than 300 new reports of awareness.

The extensive study showed that the majority of episodes of awareness are short-lived, occur before surgery starts or after it finishes, and do not always cause concern to patients. Despite this, 51% of episodes led to distress and 41% to longer-term psychological harm. Sensations experienced included tugging, stitching, pain, paralysis and choking. Patients described feelings of dissociation, panic, extreme fear, suffocation and even dying. Longer-term psychological harm often included features of post-traumatic stress disorder.

Sandra described her feelings when, as a 12-year-old, she suffered an episode of AAGA during a routine orthodontic operation:

“Suddenly, I knew something had gone wrong,” said Sandra, “I could hear voices around me, and I realised with horror that I had woken up in the middle of the operation, but couldn’t move a muscle... while they fiddled, I frantically tried to decide whether I was about to die.”

For many years after the operation Sandra described experiencing nightmares in which, “a Dr Who style monster leapt on me and paralysed me.” Sandra experienced the nightmares for more than 15 years until she realised the link: “I suddenly made the connection with feeling paralysed during the operation; after that I was freed of the nightmare and finally liberated from the more stressful aspects of the event.”

Sandra’s account is borne out by the research findings that longer-term adverse effects are closely linked with patients experiencing a sensation of paralysis during their awareness. The use of drugs to stop muscles working (muscle relaxants), often needed for safe surgery, is responsible. Distress at the time of the experience appears to be key in the development of later psychological symptoms.

Professor Jaideep Pandit, Consultant Anaesthetist in Oxford and Project Lead, explained: “NAP5 is patient focussed, dealing as it does entirely with patient reports of AAGA. Risk factors were complex and varied, and included those related to drug type, patient characteristics and organisational variables. We found that patients are at higher risk of experiencing AAGA during caesarean section and cardiothoracic surgery, if they are obese or when there is difficulty managing the airway at the start of anaesthesia. The use of some emergency drugs heightens risk, as does the use of certain anaesthetic techniques. However, the most compelling risk factor is the use of muscle relaxants, which prevent the patient moving. Significantly, the study data also suggest that although brain monitors designed to reduce the risk of awareness have a role with certain types of anaesthetic, the study provides little support for their widespread use.”

Professor Tim Cook, Consultant Anaesthetist in Bath and co-author of the report, commented: “NAP5 has studied outcomes from all anaesthetics in five countries for a full year, making it a uniquely large and broad project. It is reassuring that the reports of awareness (1 in 19,000) in NAP5 are a lot rarer than incidences in previous studies. The project dramatically increases our understanding of anaesthetic awareness and highlights the range and complexity of patient experiences. NAP5, as the biggest ever study of this complication, has been able to define the nature of the problem and those factors that contribute to it more clearly than ever before. As well as adding to the understanding of the condition, we have also recommended changes in practice to minimise the incidence of awareness and, when it occurs, to ensure that it is recognised and managed in such a way as to mitigate longer-term effects on patients.”
The project report includes clear recommendations for changes in clinical practice. Two main recommendations are the introduction of a simple anaesthesia checklist to be performed at the start of every operation, and the introduction of an Awareness Support Pathway - a structured approach to the management of patients reporting awareness. These two interventions are designed to decrease errors causing awareness and to minimise the psychological consequences when it occurs.

It is anticipated that NAP5 will lead to changes in the practice of individual anaesthetists, their training and hospital support systems both nationally and internationally.

Full details of the report can be found at http://nap5.org.uk/NAP5report


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NOTE FOR EDITORS

- We have several expert spokespeople, including anaesthetists and psychologists, available for interview. Please contact Sonia Larsen, RCoA Media Relations Manager, 020 7092 1532, slarsen@rcoa.ac.uk or Nicole Bates, AAGBI Marketing and Communications Manager, 020 7631 8854/07825 299549, nicolebates@aagbi.org

- The project’s full title is The 5th National Audit Project of the Royal College of Anaesthetists and Association of Anaesthetists of Great Britain and Ireland: Accidental Awareness during General Anaesthesia in the United Kingdom and Ireland.

- NAP5 is the largest study of awareness during anaesthesia ever performed. The project took three years and has collected data from approximately three million general anaesthetics. During the study anonymous details of every new report of awareness were studied in detail by a multidisciplinary panel including patients, anaesthetists, psychologists and other professionals. The NAP5 project is completely funded by anaesthetists through their subscriptions to the RCoA and AAGBI. It is endorsed by all four Chief Medical Officers in the UK and is also supported by the College of Anaesthetists of Ireland. As with previous National Audit Projects, NAP5 has the support and involvement of every NHS hospital in the UK, as well as all hospitals in Ireland. www.nationalauditprojects.org.uk/NAP5_home

- The NAP5 project is launched to the profession 10 September 2014 at an all-day conference at the Royal Society of Medicine. The report is published on line and is also summarised in three papers dually published in the:

  **British Journal of Anaesthesia and Anaesthesia**

  The 5th National Audit Project (NAP5) on accidental awareness during general anaesthesia: protocol, methods and analysis of data


  The 5th National Audit Project (NAP5) on accidental awareness during general anaesthesia: summary of main findings and risk factors


  The 5th National Audit Project (NAP5) on accidental awareness during general anaesthesia: patient experiences, human factors, sedation, consent and medicolegal issues


- **Awake - Anaesthesia, Music, Consciousness** is an evening event exploring the phenomenon of accidental awareness during general anaesthesia. This event, which is supported by the Wellcome Trust, will take place on 23rd September 2014 at 6.00 pm at the Royal Society of Medicine, and will explore the subject of consciousness and dreaming through a programme of live music. For further information visit www.rsm.ac.uk/awake

- The Royal College of Anaesthetists (RCoA) is the professional body responsible for the specialty throughout the UK. It ensures the quality of patient care through the maintenance of standards in anaesthesia, critical care and pain medicine. To find out more about the RCoA, please visit www.rcoa.ac.uk
The Association of Anaesthetists of Great Britain and Ireland (AAGBI) is the professional representative membership body for over 10,500 anaesthetists in the UK and Ireland. The AAGBI promotes patient care and safety. It advances anaesthesia through education, publications, research and international work. To find out more about the work of the AAGBI, visit www.aagbi.org