A SURVEY OF CRITICAL INCIDENTS IN ANAESTHESIA

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SUMMARY

Aims: To document the frequency of critical incidents during general anaesthesia, identify the causes of incidents and develop preventive strategies to prevent recurrence of such incidents.
Methods: This was a retrospective review of all anaesthetic misadventures in a University Teaching Hospital during a one year period.
Results: During the study period, general anaesthetics were administered on 2190 occasions out of which 54 critical incidents were reported. Human error was more frequently responsible than equipment failure.
Conclusion: Critical incident reporting was effective in revealing latent errors and in clarifying the role of human error in the generation of incidents.

Key words: *Anaesthesia, critical incident*

INTRODUCTION

Anaesthetic accidents, major or minor, occur in any anaesthetic department. If these are reported and reviewed regularly they provide a basis for teaching and, more importantly, modification of equipment or technique to ensure a greater degree of safety. Critical incident reporting is well established in anaesthesia and several studies have now been published which highlight the role of both active and latent errors in the genesis of critical incidents[1-6].

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Accepted for Publication: 29th July 2005

METHODS

The study was conducted in the University of Nigeria Teaching Hospital, Enugu where anaesthetics were administered in eight different areas by three consultants, five senior registrars and ten junior residents in Anaesthesia.

A critical incident was defined as any incident which affected or could have affected the safety of the patient under general anaesthesia. In order that the anaesthetists should know what was meant, they were asked to report any anaesthetic mishap, major or minor, which was harmful or potentially harmful to the patient, and associated with human error or equipment failure. Agreement over the system of reporting was obtained from all members of the department. Blank report sheets were issued requiring the following information.

(a). The nature of the event
(b) The outcome of the event
(c) Anaesthetist's recommendation to prevent recurrence.

Factors associated with the event were also listed requiring a YES/NO answer. These were.

(a) Emergency case
(b) Lack of experience with technique or equipment
(c) Failure to perform a normal check
(d) Lack of skilled assistance
(e) Restricted access to patients and
(f) Inadequate supervision of the patients due to distraction, fatigue, inattention, boredom or anxiety.

The anaesthetists were asked to complete details as soon as possible after the incident, and return it to a "posting box" in the anaesthetic office.

RESULTS

Fifty–four critical incidents were reported in the one year of study. During this period general anaesthetics were given on 2190 occasions, 1490 being for routine procedures while 700 were for emergency procedures.

The incidents were divided into four categories: problems with transmission of anaesthetic gases and vapours to the patient, problem associated with tracheal tubes, drug administration problem, and miscellaneous.

The brief details of the reported incidents are shown in tables 1 and 2. Thirty-six reports were assessed to be caused by human error alone, and nine by equipment failure. The remaining nine errors were probably due to a combination of both.

DISCUSSION

In this survey, human error was responsible for 67% of the incidents with failure to perform a pre- anaesthetic check the commonest associated factor. This result did not differ significantly from that by Craig and Wilson[7] who gave 65% of incidents due to human error. A "cockpit drill" similar to that recommended by Ward[8] should form the basis for a routine procedure. A combination of human error and equipment failure accounted for 17% of the incidents. For example, disconnections were thought to be due to a combination of faulty or ill –fitting equipment plus inadequate care in assembly[9]. Where possible, equipment should be made safer, for example the use of anti disconnect connections may have advantages[10-12]. Electrically driven ventilators should have labelled electrical plugs and sockets so that accidental unplugging should not occur. Such an accident has been described elsewhere[13].

Tracheal tubes, cuffs and pilot balloons still cause concern. A pre- anaesthetic check may identify faults in the tracheal tube and meticulous care in positioning and securing it may reduce these problems. The use of non–kinkable tracheal tubes should be routine in all head and neck surgeries or when a patient is in the prone position.

Drug administration problem[14] particularly the giving of wrong drug, reinforce the

necessity for checking ampoules and labelling syringes.

No conclusions have been drawn about the overall incidence of these incidents because some under-reporting is inevitable. Furthermore, what constitutes critical incident is debatable, as whether an incident is serious enough to be reported depends on the nature of the incident, how long it is undetected, the health of the patient and whether there are other associated mishaps. Consequently, a statistical analysis has not been attempted. Instead the feasibility and benefits of a department –based reporting system for critical incidents has been demonstrated, allowing hazards to be pinpointed and warning issued to prevent repetitions.

TABLE 1: FACTORS ASSOCIATED WITH THE CRITICAL INCIDENTS

	ASSOCIATED FACTORS	FREQUENCY
1	Failure to perform a normal check	20
2	Emergency case	10
3	Distraction	8
4	Hurry	8
5	Lack of skilled assistance	8
6	Fatigue	8
7	Lack of experience with equipment	4
8	Lack of experience with technique	4
9	Restricted access to patient	2
10	Boredom	1
11	Failure to assess patient preoperatively	1

TABLE 2: CATEGORIES AND TYPE OF INCIDENTS

Category	Type of incident	Details of incidents	N0
(1) Transmission of anaesthetic gases and vapours	Disconnections	Catheter mount and tracheal tube	4
		Catheter mount and corrugated hose	2
		Catheter mount and connector	1
	Leaks	Tubing from Boyles machine	4
(2) Tracheal tube problems	Intubation	Kinked tube	4
		Oesophagus intubated	4
		Tracheal tube dislodged	3
	Cuff problem	-Extubation with cuff inflated	8
		- Cuff burst	4
		- Leaking pilot balloon	2
(3) drug administration	Drug 'swap'	Wrong drug given	4
		Syringe mislabelled	2
	Drug omission	Atropine/neostigmine 'reversal'	2
		Suxamethonium for intubation	2
(4) miscellaneous	General patient care	Induction with patient's denture in situ unrecognized.	3
		Crown dislodged at intubation.	2
		Throat packs in situ post operatively.	2
		Damage to eyes under adhesive tapes.	1

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