Summary of medical errors in the anesthesiology and resuscitation department at Hai Phong Hospital of Obstetrics and Gynecology in 2023 and the first six months of 2024

Đỗ Thị Lan Anh[1]*, Hoàng Thị Hoa[2]

ABSTRACT

Medical errors are difficult to avoid and can occur at any stage of the health examination and treatment process. The objective of this study is to describe the medical errors that occurred in the anesthesiology and resuscitation department of Hai Phong Hospital of Obstetrics and Gynecology during 2023 and the first six months of 2024. A descriptive study using retrospective data with 24 reports of medical errors occurring in the department, from January 1st 2023 to June 30th 2024, as well as 3 secondary reports on medical errors occurring at the hospital every six months. The data collection and analysis period were from May 2024 to September 2024 at Hai Phong Hospital of Obstetrics and Gynecology. The results indicate that 23 out of 24 errors were related to medical equipment and infrastructure, categorized as level B, which did not affect the patients. One error, classified as level H, was due to a patient reacting to a blood product and required intervention to save the patient's life.

Keywords: *medical errors, the anesthesiology and resuscitation department, Hai Phong Hospital of Obstetrics and Gynecology*

[1] *Hai Phong University of Medicine and Pharmacy, Vietnam*
[2] *Hai Phong Hospital of Obstetrics and Gynecology, Vietnam*

* **Corresponding author**
Đỗ Thị Lan Anh
Email: dtlanh@hpmu.edu.vn

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INTRODUCTION

Medical errors are difficult to avoid. It can be asserted that at any stage of the medical examination and treatment process, there are potential risks for patients. When medical errors occur, both the patient and the healthcare provider are victims. Today, the public's demand for healthcare requires an increasingly high quality of care and health protection. However, ensuring safety and preventing medical errors during the examination and treatment process is a significant challenge. This requires efforts across the entire healthcare system, from safe infrastructure, the use of safe medical technology and equipment, proper management and use of quality medications, clear communication with patients, to skilled and dedicated healthcare staff.

Although patients find it very difficult to accept mistakes and medical errors, healthcare providers are also human and can make errors. According to medical researchers, the medical field is one of the riskiest areas for clients. When entering a healthcare facility for examination and treatment, the most valuable asset of the patient is their health, entrusted to the healthcare providers, in return, patients always expect and hope to receive safe and quality care and treatment. Therefore, ensuring patient safety is the responsibility of every healthcare facility, every hospital leader, and is also the mission of every healthcare provider and staff member.

Medical errors are unwanted situations that occur during the diagnosis, care, and treatment process that can cause harm or pose a risk to the health and lives of patients, healthcare staff, and healthcare facilities. A near-miss situation is one that has occurred but has not yet resulted in consequences, or one that nearly happened but was detected and prevented in time, without causing harm to the patient's health. The report of medical errors at healthcare facilities including voluntary reports and mandatory reports. Voluntary reports for medical errors with varying level of harm to patient health as follows: no harm, minor harm, moderate harm. Mandatory reports for medical errors with severe harm to patient health and serious medical errors, including errors resulting in the death of one patient and suspected of posing a continued risk of death to subsequent patients, or errors resulting in the death of two or more patients in the same situation, circumstance, or due to the same cause. Medical errors must be classified according to the following three criteria: classify medical errors based on the level of harm to the patient, classify medical errors by incident group and classify medical errors by the group of causes that led to the errors [1]. Worldwide, the number of reported medical errors is quite high, with countries like the UK, the US, China, and Japan being pioneers in providing substantial data on medical errors in healthcare settings. In the UK, it is estimated that annual losses due to medical errors reach billions of pounds, while in Japan, courts take years to resolve incidents due to patient complaints [2,3]. In Vietnam, the Vietnam-Sweden Hospital in Uong Bi, Quang Ninh reported 2311 medical errors over six years from 2013 to 2018, with 84.6% of errors increasing the resources serving patients at the hospital [4]. Pham Duc Muc suggests that errors occur most frequently in surgical areas, accounting for up to 50% of medical errors [5]. The anesthesiology and resuscitation department, a clinical department is responsible for performing anesthesia and resuscitation tasks before, during, and after surgery, as well as for certain procedures on patients, in accordance with the technical professional regulations outlined in Circular 13/2012-Ministry of Health guiding anesthesia and resuscitation work [6]. However, there have been no specific reports published detailing medical errors occurring in the anesthesia and resuscitation departments of hospitals. For this reason, we are conducting a study titled 'Summary of medical errors occurring in the Anesthesia and Resuscitation Department, Hai Phong Hospital of Obstetrics and Gynecology in 2023 and the first six months of 2024' with the objective:

"To describe medical errors that occurred in the anesthesia and resuscitation department of Hai Phong Hospital of Obstetrics and Gynecology in 2023 and the first six months of 2024"

OBJECTS AND METHODS

Research objects

24 reports of medical errors occurred in the anesthesia and resuscitation department from January 1, 2023 to June 30, 2024, along with 3 reports of secondary medical errors occurred at Hai Phong Hospital of Obstetrics and Gynecology every 6 months during the same period.

Period and location for data collection

From May 2024 to September 2024, at Hai Phong Hospital of Obstetrics and Gynecology

Methods

Research design

A descriptive study using retrospective data was medical errors reports

Research variables

Data includes the number of medical errors occurring at the hospital; the number of medical errors occurring in the anesthesia and resuscitation department with the content of the medical errors, the time of occurrence of the medical errors, classification of the medical errors by the level of harm to patients, classification of the medical errors by error types, and classification of the medical errors by cause groups, reporting method of medical errors.

Data processing

Analyze quantitative data using descriptive statistics n, % in Excel.

RESULTS

Through 24 reports of medical errors of the anesthesia and resuscitation department and 3 reports of secondary medical errors of Hai Phong Hospital of Obstetrics and Gynecology from January 1, 2023 to June 30, 2024, we obtained several following research results.

Table 3.1.*The number of medical errors in the first 6 months of 2023, the last 6 months of 2023, and the first 6 months of 2024*

	The 1st 6 months of 2023	**The 2nd 6 months of 2023**	**The 1st 6 months of 2024**
The anesthesia and resuscitation department	6 (17.1%)	6 (20%)	12 (27.9%)
Hai Phong Hospital of Obstetrics and Gynecology	35 (100%)	30 (100%)	43 (100%)

In the first six months of 2023, the rate of **medical errors** occurring in the anesthesia and resuscitation department accounted for 16.1% of the total errors in the hospital. In the last six months of 2023, the rate of **medical errors** in the anesthesia and resuscitation department accounted for 20% of the total errors in the hospital. In the first six months of 2024, the rate of **medical errors** in the anesthesia and resuscitation department accounted for 27.9% of the total errors in the hospital.

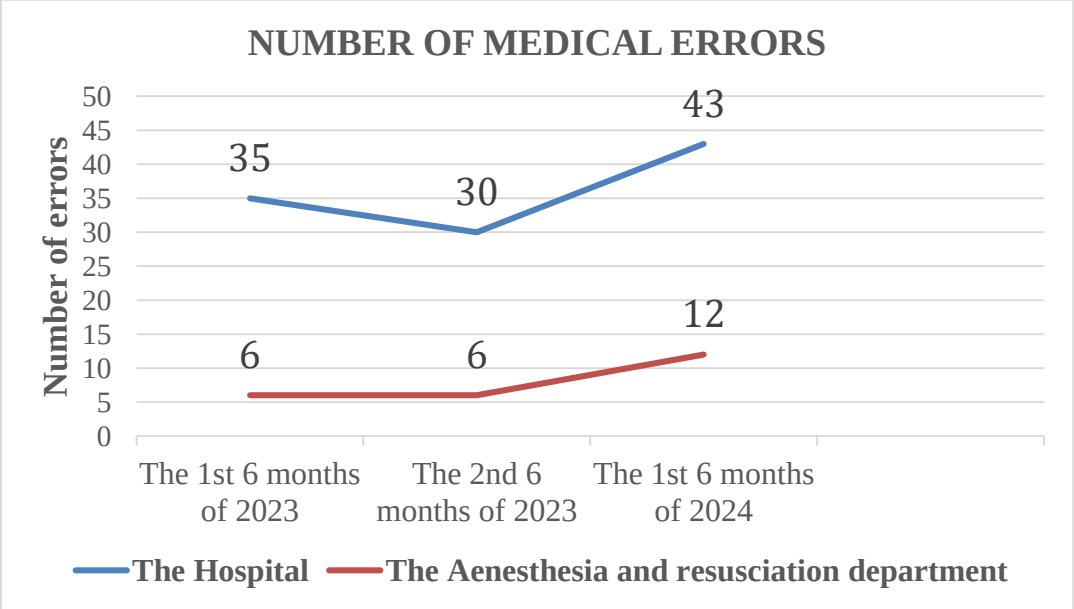

Figure 1. *The number of medical errors in the first 6 months of 2023, the last 6 months of 2023, and the first 6 months of 2024*

The number of medical errors in both the entire hospital and the anesthesia and resuscitation department has significantly increased in the first six months of 2024 due to the second facility of the hospital in Hong Bang district starting operations.

Table 2. *The number of medical errors in the anesthesia and resuscitation department according to the level of harm to patients*

	Error category according to the level of harm to patients.		**The 1st 6 months of 2023**	**The 2nd 6 months of 2023**	**The 1st 6months of 2024**	**Reporting method of medical errors**
No harm	A	Events that have capacity to cause harm	0	0	0	23 voluntary reports
Minor harm	B	Error occurred but did not reach the patient	6	6	11	
	C	Error occurred, reach the patient but did not cause harm	0	0	0	
	D	Error occurred, reach the patient-required monitoring	0	0	0	
Moderate harm	E	Error occurred-need for treatment or intervention-temporary harm to patient	0	0	0	
	F	Error occurred-need for prolonged hospitalization, temporary harm to patient	0	0	0	
Severe harm	G	Error occurred that contributed to permanent patient harm	0	0	0	1 mandatory report
	H	Error occurred that required intervention	0	0	1	

	necessary to sustain life				
I	Error occurred that resulted in patient death	0	0	0	
	Total	6	6	12	

According to the level of harm to patients, in the anesthesia and resuscitation department, there were 23 out of 24 errors that occurred but did not affect the patients (Group B); 1 out of 24 cases was an error that occurred on a patient, requiring intervention to save the patient (Group H). Correspondingly, there were 23 out of 24 errors reported voluntarily, and 1 out of 24 incidents that had to be reported mandatorily.

Table 3. *Detailed specifics of medical errors and classification of errors by incident group and cause group*

	Medical errors	Time of error's occurrence	Number of errors	Levels of harm to patients	Incident group of errors	Cause group of errors
1	The air conditioners in the operating rooms/recovery rooms are leaking water, posing a risk of slipping for patients and healthcare worker	16/1/2023 23/4/2023 05/08/2023 01/09/2023 07/10/2023 10/11/2023 01/12/2023 14/01/2024 20/02/2024 09/05/2024 21/03/2024 14/4/2024 08/05/2024	13	B	Infra-structure	Working environment
2	The suction machine in the operating room is not working.	20/2/2023	1	B	Medical equipment	Working environment
3	The surgical handwashing sink is not functioning.	8/3/2023	1	B	Medical equipment	Working environment
4	The hospital bed collided with the door of the endoscopy room, causing damage.	10/5/2023	1	B	Other	Other

5	Monitoring at the operating table/recovery room is malfunctioning, unable to measure SpO2/blood pressure.	11/03/2023 13/06/2023 05/7/2023 15/06/2024 07/01/2024 15/02/2024 23/03/2024	7	B	Medical equipment	Working environment
6	Tran Thị H, 1998. 2 hours post-normal delivery. Pulse 100 bpm. Blood pressure 180/90 mmHg, temperature 37 degrees, respiratory rate 18 breaths/min, SpO2 99%. Uterine contractions firm. Laboratory results: Platelets 111 G/L; GOT 173 U/L, GPT 107.9 U/L. Creatinine 184 U/L, Urea 5.67 mmol/L, total/direct bilirubin 56/94. Albumin 26g, Uric acid 651. Diagnosis: 2 hours post-normal delivery – Severe preeclampsia - HELLP syndrome. The patient developed	17/04/2024	1	H	Blood and blood products	External factors

	dyspnea after receiving 900ml of fresh frozen plasma, SpO2: 88%... The patient was indicated for endotracheal intubation and mechanical ventilation... The patient was transferred to Viet Tiep Hospital for treatment acute pulmonary edema/HELLP syndrome.

According to the level of harm to patients, there were 23 out of 24 incidents that occurred but did not affect the patients (Group B); 1 out of 24 cases was an incident that occurred on a patient, requiring intervention to save the patient (Group H). Correspondingly, there were 23 out of 24 incidents reported voluntarily, and 1 out of 24 incidents that had to be reported mandatorily.

DISCUSSIONS

This is the first study to statistically analyze medical errors occurring in the anesthesia and resuscitation department.

The medical errors rate in the anesthesia and resuscitation department ranges from 17.1% to 27.9% depending on each stage, which is relatively high. This result was quite similar to a study at the Kien An hospital–Haiphong city in 2022-2023 showing that the medical errors rate of the Department Gastrointestinal Surgery and the Department of Anesthesiology reported the most at 13.6% [7]. However, our results are much higher than the study at Phu Tho General Hospital in 2020, which reported an incidence rate of 5.2% in the operating room [8]. A study in New Zealand 1998 involving a total of 6579 medical records from 13 representative hospitals reported a frequency of medical errors at 6.3%. Among these, over 50% were related to patients who had undergone surgery [9].

The reason may be due to the different types of hospitals. In general hospitals, the distribution of incidents is scattered across various departments. The hospital in this study specializes in obstetrics and gynecology with alot of procedures and surgeries, so incidents are concentrated mainly in the operating room, anesthesia, and recovery areas.

The predominance of equipment-related incidents (23 out of 24) suggests a systemic issue within the anesthesia and resuscitation department's operational environment. The fact that these errors did not lead to patient harm (severity level B) indicates that while

the risks are present, the safety protocols in the department may be effective in mitigating potential harm. This is consistent with findings from study "Analysis of anaesthesia incidents during caesarean section reported to webAIRS between 2009 and 2022" show that one of the most commonly reported incidents was equipment issues with 49,1% [10]. Devices have improved care delivery and associated outcomes for many conditions. Despite their benefit, an audit of the UK National Patient Safety Agency over 7 months found that 1021 of 12.084 patient safety incidents were due to devices. Although the reports lacked details about the device, procedure, outcomes and factors causing the incident, the audit also found that device-related incidents were caused by device failure (43.8%), inappropriate use (29.3%), lack of training (12.3%) and inadequate maintenance (1.5%) [11].

The single incident classified as severity level H, involving a patient reacting to a blood product, highlights the critical nature of certain medical interventions. This emphasize that transfusion reactions, while relatively infrequent, can have serious consequences and require immediate intervention. The contrast between the high number of non-harmful errors and the singular severe error underscores the complexity of patient safety in clinical settings.

CONCLUSIONS

23 out of 24 medical errors occurred in the anesthesia and resuscitation department due to medical equipments and facilities, with severity level B, which did not affect the patients; 1 out of 24 medical errors was due to patients reacting to blood products, with severity level H, requiring intervention to save the patients' lives.

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Institutional Review Board Statement: Ethical review and approval were waived for this study, due to the design of this research as a descriptive study using retrospective data.

Informed Consent Statement: Not applicable

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

1. Thông tư Hướng dẫn phòng ngừa sự cố y khoa trong các cơ sở khám bệnh, chữa bệnh số 43/2018/TT-BYT [cited 2024 Nov 14]. Available from https://luatvietnam.vn/y-te/thong-tu-43-2018-tt-byt-phong-ngua-su-co-y-khoa-trong-cac-co-so-kham-benh-chua-benh-169832-d1.html?layout=amp
2. X. Gao et al. Implications from China patient safety incidents reporting system. Ther Clin Risk Manag. 2019; 15:259-267.
3. T. Shimizu, Y. Tokuda. Pivot and cluster strategy: a preventive measure against diagnostic errors. Int J Gen Med. 2012; 5: 917-21.
4. Nguyễn Thị Thu Hà. Thực trạng báo cáo sự cố y khoa và một số yếu tố ảnh hưởng tại bệnh viện Việt Nam - Thụy Điển Uông Bí giai đoạn 2013-2018. Luận văn thạc sỹ quản lý bệnh viện; 2019
5. Giảm thiểu sự cố y khoa trong các bệnh viện, Hội điều dưỡng Việt Nam. [cited 2024 Nov 14]. Available from http://www.vsem.org.vn/Giảm thiểu sự cố y khoa trong các bệnh viện
6. Thông tư 13/2012-BYT hướng dẫn về công tác gây mê hồi sức. [cited 2024 Nov 14]. Available from https://thuvienphapluat.vn/van-ban/The-thao-Y-te/Thong-tu-13-2012-TT-BYT-huong-dan-cong-tac-gay-me-hoi-suc-147690.aspx

7. Nguyễn Thị Nhận. Thực trạng báo cáo sự cố y khoa tại Bệnh viện Kiến An, Thành phố Hải Phòng năm 2022-2023. Vietnam Journal of Community Medicine. 2024; 65(3): 65-72
8. Nguyễn Huy Ngọc. Đặc điểm sự cố y khoa tại bệnh viện đa khoa tỉnh Phú Thọ năm 2020. Tạp chí Y học Việt Nam. 2021; 503(1) 71-79
9. Davis P, Lay-Yee R, Briant R, Ali W, Scott A, Schug S. Adverse events in New Zealand public hospitals II: preventability and clinical context.
10. Eley VA, Culwick MD, Dennis AT. Analysis of anaesthesia incidents during caesarean section reported to webAIRS between 2009 and 2022. Anaesth Intensive Care. 2023 Nov;51(6):391-399. doi: 10.1177/0310057X231196915. Epub 2023 Sep 22. PMID: 37737092.
11. Polisena J, Gagliardi A, Urbach D et al. Factors that influence the recognition, reporting and resolution of incidents related to medical devices and other healthcare technologies: a systematic review. Syst Rev. 2015; 4(37). doi: 10.1186/s13643-015-0028-0. PMID: 25875375; PMCID: PMC4384231.

