ISSN. 2338-7475
E-ISSN. 2620-7869
Hearty
Jurnal Kesehatan Masyarakat
Beriman, Tulus, Sepenuh Hati,Berbesar Hati, Jujur, Sehat dan Kuat
Vol. 13 No. 3, June 2025, Hal. 650-655

POLICY ON ANESTHESIA SERVICES FOR HYPERTENSION PATIENTS IN PRE, INTRA, AND POST ANESTHESIA BY SPECIALIST ANESTHETISTS AND ANESTHESIA CAREGIVERS

Rahmania Ambarika *, Widigdo Rekso Negoro
Kesehatan Masyarakat, Universitas Strada Indonesia
Jl. Manila No.37, Tosaren, Kec. Pesantren, Kota Kediri, Jawa Timur 6412, Indonesia
Coresponden Email: widigdo.wrn@gmail.com

Abstract

Anesthesia services are an important component of medical services in surgical procedures and other invasive procedures that aim to reduce or eliminate pain during the procedure. The success of anesthesia is not only triggered by the anesthetic technique used, but the patient's clinical condition also has an influence. Specialist anesthetists and anesthetists play an important role in determining patient suitability, adjusting the appropriate anesthesia technique, and monitoring during and after the procedure. Hypertension is a chronic disease that requires special attention in anesthesia services because of a higher risk of blood pressure fluctuations, organ perfusion disorders, and cardiovascular events such as stroke and myocardial infarction. This research aims to examine the anesthesia service policy at Pindad Turen Hospital and analyze the obstacles experienced by medical personnel in its implementation. The results of this study show that there is a main problem in implementing anesthesia service policies for hypertensive patients in hospitals, namely that there is no standardization of policies or SOPs related to determining the suitability of hypertensive patients to undergo anesthesia and there are differences in perception between specialist anesthetists and anesthetists, especially regarding safe blood pressure limits and recording the results of pre-anesthesia evaluations. From the problems found, a situation analysis was carried out using fishbone, USG, and SWOT diagrams, and priority problems were found, namely the absence of appropriate blood pressure standards for hypertensive patients and the absence of a special SOP for anesthesia services for hypertensive patients. These problems have the potential to affect patient safety during anesthesia. The intervention was carried out through outreach and training to health workers and it was proven to increase knowledge and uniformity of perception of medical staff in determining the suitability of hypertensive patients as evidenced by an increase in evaluation results from 2.8 (pretest) to 5 (posttest).

Keywords: Hypertension, Anesthesia, Policy, Anesthesiologist, Anesthetist

Introduction

Anesthesia services are an important component in surgical medical procedures and other invasive procedures to reduce or eliminate pain during the procedure [1]. The success of anesthesia depends not only on the technique used but also on the clinical condition of the patient. Therefore, anesthesia services must be carried out in a structured, comprehensive manner, and refer to patient safety principles starting from the pre-anesthesia, intra-anesthesia, to post-anesthesia phases. In its implementation, specialist anesthetists and anesthesia administrators as care providers have a very important role in determining patient suitability, adjusting anesthesia techniques, and carrying out monitoring during and after the procedure [2].

Submitted: April-2025 Received: May-2025 Available Online: June-2025

Hypertension is a patient condition that requires special attention in anesthesia services because of the greater risk of perioperative complications. Hypertension or high blood pressure is a chronic disease characterized by increased blood pressure, where systolic blood pressure is ≥130 mmHg or diastolic ≥80 mmHg [3], [4]. This condition can cause damage to vital organs such as the heart, kidneys, and brain, and increases the risk of serious complications, including when undergoing anesthesia [5], [6].

In anesthesia procedures, hypertensive patients have a higher risk of blood pressure fluctuations, organ perfusion disorders, and acute cardiovascular events such as stroke and myocardial infarction [7], [8] . Therefore, it is very important to carry out a thorough evaluation of the patient's blood pressure status before anesthesia is carried out [9]. In the intra-anesthesia phase, blood pressure control becomes the main challenge to maintain hemodynamic stability [10]. Meanwhile, in the post-anesthesia phase, hypertensive patients are at risk of experiencing rebound hypertension or further complications that require close monitoring and rapid treatment.

At Pindad Turen Hospital Malang, hypertension is one of the accompanying conditions that is often found in anesthesia practice. It was recorded that 360 patients underwent anesthesia, and 10%-15% of them were patients with a history of hypertension in March 2025. This high number of cases shows the importance of special attention to the management of hypertensive patients during anesthesia. However, there is no standardized policy in determining the suitability of hypertensive patients to undergo anesthesia, especially in determining safe blood pressure limits before the procedure. In addition, there are differences in perception between specialist anesthetists and anesthesia administrators in terms of risk assessment and recording evaluation results which have an impact on the consistency and safety of services.

This condition shows the need to develop recommendations for anesthesia service policies that are standardized and based on patient safety, especially for patients with hypertension. Therefore, researchers are interested in conducting a study of the implementation of existing policies, identifying obstacles to policy implementation, as well as providing education and training to anesthesia care providers at Pindad Turen Hospital. It is hoped that the results of this activity can improve the quality of anesthesia services through a shared understanding of the safe and effective treatment of hypertensive patients.

Method

This research applies an educational approach through seminars, discussions, interviews, and observations at Pindad Turen Hospital with several research stages: 1) Preparing all needs which include identifying problems, coordinating with the hospital regarding permits, and collaborating with health workers to support the smooth running of the research, as well as preparing educational materials and media. 2) Carry out research by presenting material regarding anesthesia service policies for hypertensive patients to specialist anesthetists and anesthesia administrators at Pindad Turen Hospital. In this case, researchers are also open to holding question-and-answer sessions and discussions with respondents. 3) evaluate to measure the extent to which this research changes respondents' understanding of anesthesia service policies for hypertensive patients. The evaluation was carried out twice, before and after socialization to measure respondents' knowledge.

Results and Discussion

The results of initial observations and interviews with health workers at Pindad Turen Hospital showed that there were inconsistencies in determining the appropriateness of anesthesia for hypertensive patients. Some health workers have different perceptions regarding the safe blood pressure limits for undergoing anesthesia. In addition, recording the results of patient evaluations using Early Warning Scoring (EWS) has not been carried out uniformly and has not been used as the main reference in clinical decision-making. Several of these findings are obstacles to ensuring the safety of hypertensive patients undergoing anesthesia.

3.1 Problem Assessment Using Fishbone Diagrams

Problem-solving at Pindad Turen Hospital regarding the implementation of anesthesia service policies for hypertensive patients is carried out by identifying the root of the problem. This research adopts root cause analysis using a fishbone diagram. In the fishbone diagram or known as the fishbone diagram, the main problem at Pindad Turen Hospital is positioned as the fish head and the factors causing the problem are the fish spines. The factors that cause problems are grouped based on 6 categories known as 6M, namely: Man, Method, Material, Environment, Machine, and Management. Referring to the results of observations and interviews at Pindad Turen Hospital, the main problem in implementing the anesthesia service policy for hypertensive patients is that there are no appropriate standards for the blood pressure of hypertensive patients when undergoing anesthesia and there are differences in perceptions regarding the safe limits of blood pressure for anesthesia from health workers. The factors causing the main problems are explained based on category 6M including: 1) Man, there is a difference in perception between specialist anesthetists and anesthesia managers, and lack of training related to anesthesia management in hypertensive patients. 2) Method, there is no SOP regarding the handling of hypertensive patients who will undergo anesthesia. 3) Material, there are no written guidelines for ideal blood pressure limits before anesthesia. 4) Environment, lack of coordination between health workers in making anesthesia decisions and limited preparation time for procedures. 5) Machines and blood pressure monitoring equipment are not yet digitally integrated and there is no automatic reminder system for severe hypertension patients. 6) Management, there is no routine supervision from management regarding anesthesia procedures for hypertensive patients and there is no regular evaluation of the implementation of SOP and EWS. The fishbone diagram based on the main problems and causal factors is presented in Figure 1.

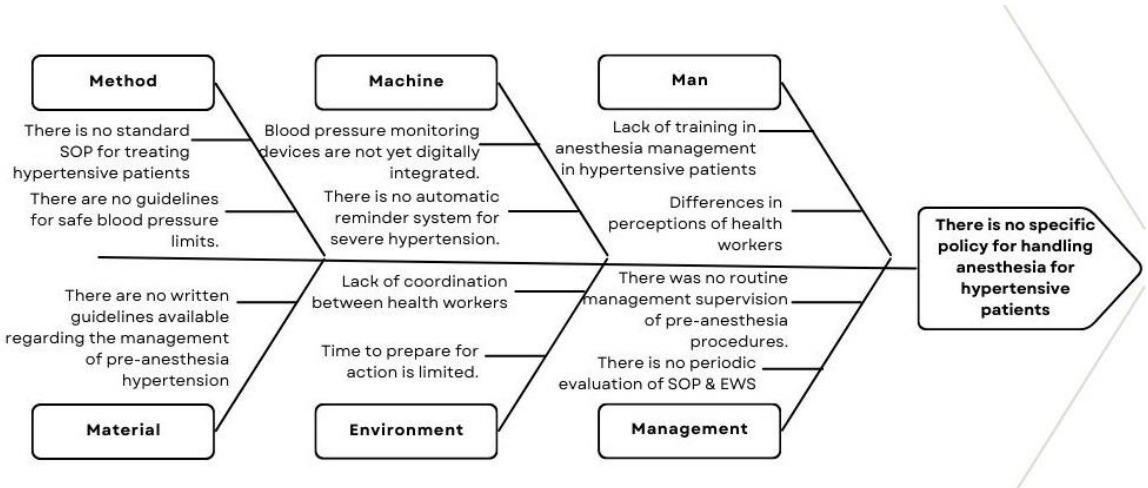

Figure 1 Fishbone diagram

3.2 Problem Formulation using USG

Determining problem priorities with USG is based on the level of urgency (urgency), seriousness (seriousness of the impact), and growth (potential for the problem to develop). The results of priority scoring of USG problems are presented in Table 1.

Table 1 Results of priority scoring of USG problems

No	Masalah utama	Urgenc (U)	Seriousnes (S)	Growt (G)	Total (U+S+G)
1	Belum ada standar atau kebijakan baku dalam menentukan kelayakan tekanan darah pada pasien hipertensi untuk menjalani tindakan anestesi	4	3	3	10
2	Perbedaan persepsi antara dokter spesialis anestesi dalam menentukan risiko dan pelaksanaan anestesi pada pasien hipertensi	3	3	3	9

Referring to Table 1, the main priority problem at Pindad Turen Hospital is "There is no standard or standard policy for determining the appropriateness of blood pressure in hypertensive patients to undergo anesthesia" as evidenced by the highest value of urgency, serious impact, and potential problems.

3.3 Analyze Problems with SWOT

SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was used to evaluate internal and external factors that influence the implementation of anesthesia services for hypertensive patients at Pindad Turen Hospital. This method helps design intervention strategies that are more appropriate and applicable to overcome previously identified problems, namely: 1) There are no standards or standard policies for determining the appropriateness of blood pressure in hypertensive patients to undergo anesthesia. 2) Differences in perception between specialist anesthetists and anesthesia administrators in risk assessment and implementation of anesthesia in hypertensive patients. The results of the SWOT analysis are presented in Table 2.

Table 2 SWOT Analysis Results

Strengths	Weaknesses
1. Health personnel (specialist anesthetists and anesthetist are competent and experienced 2. Management commitment to improving patient Safety 3. Pindad Turen Hospital has been fully accredited	1. There is no standard policy SOP regarding safe blood pressure before anesthesia 2. There is no uniform procedure for assessing the eligibility of hypertensive patients. 3. Inter-professional coordination is not yet optimal. 4. Lack of training regarding anesthetic management of hypertensive patients
Opprtunities	**Threats**
1. Hospital management support to improve service quality. 2. Opportunities for collaboration with institutions for training and supervision	1. Risk of medical complications if there is no blood pressure evaluation right 2. Potential complaints or legal claims from patients if a medical error occurs 3. Interprofessional disharmony has an impact on service quality

Based on these results, an intervention plan was then prepared based on the main problems found as presented in Table 3.

Table 3 Intervension Plan

No	Main Problems	Intervension Plan
1	There is no standard policy for determining the appropriateness of anesthesia for hypertensive patients.	1. Forming a team to prepare SOPs for anesthesia services for hypertensive Patients 2. Review national and international guidelines regarding anesthesia in hypertensi patients 3. Develop and disseminate SOPs to all medical personnel
2	Differences in perception between specialist anesthetists and anesthetists in assessing and recording evaluation results	1. Organize regular training and discussions on the implementation of SOPs and anesthesia risk assessment 2. Providing case simulations to increase mutual understanding 3. Establish regular supervision by a specialist anesthesiologist for the anesthetist

After preparing the intervention plan, researchers carried out outreach and training at Pindad Turen Hospital. Before socialization, a pretest was carried out to measure knowledge about anesthesia and hypertension as well as understanding of SOP. After the activity, a retest was carried out to measure the success of the socialization in increasing the understanding of medical personnel. This evaluation used a questionnaire and the results obtained during the pretest and posttest are presented in Table 4.

Table 4 Recap of Questionnaire Results Before and After Socialization

No	Statements	Pretest Score	Posttest Score
1	The blood pressure that is considered safe for undergoing general anesthesia is <160/100 mmHg	4	9
2	One of the risks of anesthesia in hypertensive patients is hemodynamic instability.	8	10
3	The ideal time to evaluate blood pressure is during the pre-anesthesia examination	3	8
4	The authority to determine the suitability of hypertensive patients for anesthesia is specialist anesthesiologist.	9	10
5	The aim of the SOP for anesthesia services for hypertensive patients is to standard safety and assessment.	2	8

Table 4 shows that there was an increase in participants' understanding after the education was carried out. The highest increase occurred in statement number 5, which means this training helps in understanding the function of anesthesia SOPs for hypertensive patients. Statements 2 and 4 produced high pretest scores, which means that the majority of respondents had a good understanding of the authority of specialist anesthesiologists and the general risks of anesthesia for hypertension before education was carried out. Changes in respondents' knowledge based on pretest and posttest scores are presented in Table 5.

Table 5 Changes in Respondents' Knowledge

Respondent	Pretest	Posttest
R1	2	5
R2	2	5
R3	4	5
R4	2	5
R5	3	5
R6	2	5
R7	3	5
R8	3	5
R9	4	5
R10	3	5
Mean	2,8	5

Conclusion

There are main problems in implementing the anesthesia service policy for hypertensive patients at Pindad Turen Hospital, namely that there is no standardized policy or SOP regarding determining the suitability of hypertensive patients to undergo anesthesia and there are differences in perception between specialist anesthetists and anesthesia administrators, especially regarding safe blood pressure limits and recording the results of pre-anesthesia evaluations. From the problems found, a situation analysis was carried out using fishbone, USG, and SWOT diagrams, and priority problems were found, namely the absence of appropriate blood pressure standards for hypertensive patients and the absence of a special SOP for anesthesia services for hypertensive patients. These problems have the potential to affect patient safety during anesthesia. The intervention was carried out through outreach and training to health workers and it was proven to increase knowledge and uniformity of perception of medical staff in determining the suitability of hypertensive patients as evidenced by an increase in evaluation results from 2.8 (pretest) to 5 (posttest).

References

[1] A. P. Putra, A. Millizia, and M. K. Akbar, "Manajemen Anestesi Perioperatif," *Galen. J. Kedokt. dan Kesehat. Mhs. Malikussaleh*, vol. 1, no. 2, p. 82, 2022, doi: 10.29103/jkkmm.v1i2.8098.

[2] M. Seminario-Amez, B. González-Navarro, R. Ayuso-Montero, E. Jané-Salas, and J. López-López, "Use of Local Anesthetics With a Vasoconstrictor Agent During Dental Treatment in Hypertensive and Coronary Disease Patients. a Systematic Review," *J. Evid. Based. Dent. Pract.*, vol. 21, no. 2, p. 101569, 2021, doi: 10.1016/j.jebdp.2021.101569.

[3] S. E. Kjeldsen, "Hypertension and cardiovascular risk: General aspects," *Pharmacol. Res.*, vol. 129, pp. 95–99, 2018, doi: 10.1016/j.phrs.2017.11.003.

[4] E. Oliveros *et al.*, "Hypertension in older adults: Assessment, management, and challenges," *Clin. Cardiol.*, vol. 43, no. 2, pp. 99–107, 2020, doi: 10.1002/clc.23303.

[5] W. Istanto and E. M. Tua, "Manajemen Perioperatif pada Pasien COVID-19," *Medica Hosp. J. Clin. Med.*, vol. 7, no. 1A, pp. 214–225, 2020, doi: 10.36408/mhjcm.v7i1a.455.

[6] E. Khan, S. Nawaz, K. Inam, M. Alali, and M. Waqas, "Anesthesia Strategies for the Perioperative Management of Severe Pulmonary Hypertension in Emergency Orthopedic Surgery: A Case Report," *Cureus*, vol. 16, no. 9, 2024, doi: 10.7759/cureus.68836.

[7] A. E. Norlander, M. S. Madhur, and D. G. Harrison, "Correction: The immunology of hypertension [Journal of Experimental Medicine, 215, 1,(2018)] doi: 10.1084/jem.20171773," *J. Exp. Med.*, vol. 215, no. 2, p. 719, 2018, doi: 10.1084/jem.2017177301022018c.

[8] H. T. Cheng, X. Xu, P. S. Lim, and K. Y. Hung, "Worldwide Epidemiology of Diabetes-Related End-Stage Renal Disease, 2000-2015," *Diabetes Care*, vol. 44, no. 1, pp. 89–97, 2021, doi: 10.2337/dc20-1913.

[9] C. L. Pfister *et al.*, "A Multicenter, Cross-Sectional Quality Improvement Project: The Perioperative Implementation of a Hypertension Protocol by Anesthesiologists," *Anesth. Analg.*, vol. 131, no. 5, pp. 1401–1408, 2020, doi: 10.1213/ANE.0000000000004966.

[10] I. Lizano-Díez, S. Poteet, A. Burniol-Garcia, and M. Cerezales, *The burden of perioperative hypertension/ hypotension: A systematic review*, vol. 17, no. 2 February. 2022. doi: 10.1371/journal.pone.0263737.