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MANAGEMENT OF "SIGAP-ANESTHESI": SYNERGY OF AMPLE EDUCATION AND BASIC LIFE SUPPORT TO ENHANCE PRE-ANESTHESIA PREPAREDNESS OF HYPERTENSIVE PATIENTS' FAMILIES IN THE CENTRAL SURGICAL INSTALLATION WAITING AREA OF BANGLI REGIONAL GENERAL HOSPITAL

Yustina Ni Putu Yusniawati[1*], I Gde Agus Shuarsedana Putra[2], Emanuel Ileatan Lewar[2] ,Ni Wayan Sri Rahayuni[3], Rani Valentina Angelina Djami[2], Putu Denny Juniawan[2], Ida Ayu Carisa Meikayani[2], I Kadek Feri Irawan[2]

[1] Bachelor of Nursing Study Program, Faculty of Health Sciences, Institut Teknologi dan Kesehatan (ITEKES) Bali
[2] Applied Bachelor of Anesthesiology Nursing Study Program, Faculty of Health Sciences, Institut Teknologi dan Kesehatan (ITEKES) Bali
[3] Bachelor of Midwifery Study Program, Faculty of Health Sciences, Institut Teknologi dan Kesehatan (ITEKES) Bali

* Corresponding
Yustina Ni Putu Yusniawati
Institut Teknologi dan Kesehatan Bali
Jl Tukad Balian No 180 Renon Denpasar Bali
Email: yustinaindrayana@gmail.com

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ABSTRACT

Hypertension is a chronic condition that often remains asymptomatic but is associated with a high risk of perioperative complications. In adults, hypertension is classified as essential or secondary, while in pregnancy it presents as gestational hypertension or preeclampsia, which may progress to HELLP syndrome. Patients with hypertension undergoing surgical procedures are at increased risk of complications, including stroke, arrhythmias, and mortality, particularly when blood pressure is poorly controlled. Certain anesthetic agents, such as sevoflurane and propofol, may induce significant hypotension, highlighting the importance of comprehensive pre-anesthetic assessment. The AMPLE approach (Allergy, Medication, Past Medical History, Last Meal, Environment/Event) serves as a systematic method to identify perioperative risks and support safe anesthesia planning.Preliminary observations at Bangli Regional Hospital reported 20–30 surgical cases with comorbid hypertension per month, including 10–20 cases of gestational hypertension. To address this issue, a community service program was conducted to provide education on pre-anesthetic assessment using AMPLE

and Basic Life Support (BLS) training for patients' families. The program was positively received, with participants demonstrating appropriate BLS techniques and actively engaging during counseling sessions. These findings suggest that routine implementation of AMPLE education and BLS training may enhance family preparedness and patient safety in perioperative and emergency situations.

Keywords: AMPLE, BLS, Family, Hypertension

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INTRODUCTION

Hypertension is a chronic cardiovascular disorder characterized by a persistent elevation of systolic blood pressure above 140 mmHg and diastolic pressure above 90 mmHg Often asymptomatic, hypertension is widely known as a "silent killer" due to its potential to cause progressive and unrecognized damage to vital organs, including the heart, kidneys, and brain. In surgical patients, hypertension represents a significant perioperative and postoperative risk factor, contributing to complications such as hemodynamic instability, myocardial ischemia, and cerebrovascular events (Natungga et al., 2024; Prasetyo & Sapto Edi Rahayu, 2023).

Among adults, hypertension is generally classified into essential hypertension, for which no definitive etiology is identified, and secondary hypertension, which is commonly associated with renal dysfunction, endocrine abnormalities, or drug-induced mechanisms (Kartika et al., 2022; Natungga et al., 2024). In the obstetric population, hypertensive disorders of pregnancy including preeclampsia, gestational hypertension, and the severe complication known as HELLP syndrome pose significant maternal and fetal risks (Ansar et al., 2019; Soenarta et al., 2015). HELLP syndrome, defined by Hemolysis, Elevated Liver enzymes, and Low Platelet count, is associated with substantial morbidity due to hemolysis, hepatic injury, and severe thrombocytopenia (Kartika et al., 2022)

Surgical procedures in hypertensive patients, particularly those with uncontrolled blood pressure, increase the risk of stroke, major bleeding, arrhythmias, and perioperative mortality (Ansar et al., 2019; Wahyudi et al., 2018). In pregnant women, procedures such as cesarean section may exacerbate cardiovascular burden and elevate the likelihood of obstetric complications (Hamria et al., 2020; Sartik et al., 2017). Therefore, preoperative stabilization and rigorous assessment are mandatory. Anesthetic agents such as sevoflurane, propofol, and midazolam induce vasodilation and may precipitate sudden hypotension, thus requiring careful titration and anticipatory hemodynamic monitoring (Lewar et al., 2022; Ni et al., 2024; Yusniawati, 2018).

A structured pre-anesthesia assessment, particularly the AMPLE framework (allergies, Medications, Past Medical History, Last Meal, Events/Environment), plays a pivotal role in identifying risk factors and informing individualized anesthetic planning (Mangku & Senapathi, 2010; Guidelines

for Anesthesiology and Intensive Care Services in Hospitals, 2011). The "Medication" component is essential for evaluating antihypertensive therapy such as beta-blockers, ACE inhibitors, and diuretics due to their potential interactions with anesthetic agents. Additionally, the "Past Medical History" element allows identification of longstanding hypertension, prior hypertensive crises, or preeclampsia, all of which contribute to intraoperative risk stratification (Gede & Prabawati, 2021; Marsaban et al., 2016; Razak et al., 2020). Fasting status ("Last Meal") and psychosocial factors, including environmental influences and family support, also affect physiological responses preoperatively (Adolph, 2016).

In cases of severe hypertension, acute life-threatening emergencies such as cardiac arrest or stroke may occur unexpectedly. Therefore, in conjunction with clinical assessment, Basic Life Support (BLS) training for healthcare providers and families is important to ensure immediate and effective response during emergency events. Collectively, strict implementation of AMPLE assessment, preoperative blood pressure optimization, and emergency preparedness through BLS constitute essential components of safe anesthesia management among hypertensive patients, including pregnant women (Mangku & Senapathi, 2010; Guidelines…, 2011; Riantini, 2022).

A preliminary survey at Bangli Regional Hospital reported that 20–30 surgical cases per month involved hypertensive patients, while hypertensive disorders of pregnancy accounted for an additional 10–20 surgical cases monthly. These findings emphasize the importance of patient and family education regarding pre-anesthesia AMPLE assessment and hypertension associated surgical risks. Accordingly, the Community Service Program team proposes the development of an educational and management program focusing on pre-anesthesia AMPLE assessment and cardiac arrest response training for hypertensive patients and their families at Bangli Regional Hospital.

OBJECTIVES

General Purpose

This highlights the importance of patient and family education regarding pre-aesthetic management and the risk of hypertension-related complications.

Special Purpose

Providing education to families of patients with gestational hypertension regarding pre-anesthesia assessment using the AMPLE approach, so that families understand the importance of AMPLE assessment prior to anesthetic procedures.

Providing education on the management of cardiac arrest complications through Basic Life Support (BLS) training for families of patients with hypertension and gestational hypertension.

PLAN OF ACTION

Strategy Plan

The strategy employed to address the challenges identified within the partner community is grounded in the Community Development approach, a method that emphasizes empowerment and active participation. This approach positions the community not merely as recipients but as central actors in the intervention process. The overarching aim is to strengthen community capacity, enhance health

literacy, and foster sustainable health autonomy. The program is scheduled to span approximately eight months and is structured into three sequential phases: socialization, education and training, and monitoring and evaluation.

1) Socialization Phase

The socialization phase constitutes the initial stage of the community engagement process. During this phase, the implementing team disseminates essential information to community partners, including the objectives of the program, the rationale for the intervention, procedural stages, and the planned timeline. This phase ensures shared understanding and alignment between the PKM team and community stakeholders, facilitating collaborative implementation and adherence to agreed-upon program milestones.

2) Education and Training Phase

The education and training component comprises three major intervention activities:

a) Providing structured education to families of patients regarding pre-anesthesia assessment using the AMPLE framework (Allergies, Medications, Past Medical History, Last Meal, Events/Environment). This activity aims to enhance the family's comprehension of the clinical relevance of AMPLE assessment prior to anesthesia administration, particularly among patients with hypertension as a comorbid condition.

b) Delivering targeted educational sessions for families of patients with gestational hypertension to strengthen their understanding of the importance of AMPLE-based pre-anesthesia assessment in mitigating anesthesia-related risks during surgical procedures.

c) Facilitating training on the management of cardiac arrest complications, including standardized Basic Life Support (BLS) instruction, for families of patients with hypertension and gestational hypertension. This training seeks to improve the community's readiness in recognizing and responding effectively to cardiac emergencies prior to professional medical intervention.

3) Monitoring and Evaluation Phase

Monitoring and evaluation activities are designed to assess the extent to which program objectives have been achieved and to ensure alignment with the predetermined problem indicators within the partner community.

a) Evaluating family members' cognitive understanding and communicative ability during interactive discussions with the team regarding AMPLE pre-anesthesia assessment for patients with hypertension.

b) Assessing the comprehension and responsiveness of families of patients with gestational hypertension during educational sessions focused on AMPLE assessment.

c) Assessing participants' psychomotor skills and procedural competence in performing Basic Life Support (BLS) as an immediate management strategy for cardiac arrest in hypertensive and gestational hypertensive patients.

Implementation

Preparation Phase

The preparation phase encompasses a series of structured activities designed to ensure the readiness and coherence of the planned community engagement intervention. The activities include:

1) Institutional Coordination: Establishing communication and coordination with the community service team at Bangli Regional Hospital to align the proposed program with institutional policies and capacities.

2) Stakeholder Engagement: Coordinating with older adults and their caregivers to introduce the planned intervention, clarify expectations, and ensure their involvement throughout the program.

3) Focus Group Discussion (FGD): Conducting an FGD to identify and analyze key issues related to pre-anesthesia assessment and the delivery of Basic Life Support (BLS) training. This stage serves to refine the problem formulation and intervention strategy based on stakeholder input.

4) Development of a Plan of Action (POA): Preparing a detailed POA outlining each activity to be implemented at the partner site, including structured educational sessions for patients and families in the Anesthesia Clinic on AMPLE-based pre-anesthesia assessment for hypertension and gestational hypertension, as well as BLS training activities.

Implementation Phase

The implementation phase focuses on executing the intervention in accordance with the predetermined plan:

1) Socialization and Program Introduction: Conducting socialization activities with the team at Bangli Regional Hospital to present the program rationale, objectives, implementation procedures, and expected outcomes.
2) Capacity Building for Healthcare Personnel: Collaborating with the clinical team, particularly nursing personnel, to strengthen their knowledge and competencies in patient and family education. Training activities focus on AMPLE pre-anesthesia assessment for patients with hypertension and gestational hypertension, as well as facilitating BLS skills training for families in the Central Surgical Installation (IBS) waiting area.

Monitoring and Evaluation Phase

The monitoring and evaluation phase is conducted systematically throughout the implementation period to assess program effectiveness, identify challenges, and ensure alignment with predetermined objectives. Continuous evaluation includes:

1) Assessment of Family Knowledge: Evaluating the extent to which families understand the AMPLE pre-anesthesia assessment framework in the context of hypertension and gestational hypertension.
2) Assessment of Skill Acquisition: Evaluating family competence in performing Basic Life Support (BLS) as part of emergency preparedness for cardiac arrest management.
3) Program Performance Review: Reviewing all activities conducted at the partner site to measure program success, identify implementation

barriers, and inform future improvements. Monitoring is maintained from the initiation of the program through the conclusion of the community service activities.

Setting

This community service activity was conducted in the waiting area of the Central Surgical Installation at Bangli Regional General Hospital. The activity was carried out in a single session on Tuesday, 16 September 2025, from 10:00 to 12:00 Central Indonesia Time.

Target

The participants in this study consisted of family members of patients who were present in the waiting area during ongoing surgical procedures, with a total of 30 individuals enrolled.

RESULTS AND DISCUSSION

RESULTS

The community service activity entitled *"Education and Management of Pre-Anesthesia Assessment (AMPLE) for Families and Patients with Hypertension as a Comorbid Condition and the Management of Cardiac Arrest at Bangli Regional General Hospital"* was successfully implemented. The PKM activity was conducted in a single session on Tuesday, 16 September 2025, with the agenda consisting of educational sessions and practical training on the AMPLE pre-anesthesia assessment for families and patients with hypertension, as well as the management of cardiac arrest.

A preliminary coordination meeting and scheduling agreement were conducted on Monday, 15 September 2025, involving the head of the training and education division at Bangli Regional General Hospital. The meeting, held at 08:00 WITA, included an introduction, program briefing, and negotiation of the activity schedule. The PKM team was warmly welcomed by the head of the Diklat unit, and during this meeting, the formal scheduling for the educational and training activities on AMPLE pre-anesthesia assessment and cardiac arrest management was confirmed.

Figure 1. Initial Coordination and Introduction at the Central Surgical Installation (IBS) of Bangli Regional General Hospital

Following the introductory and coordination activities, the session continued with the delivery of educational material on Basic Life Support (BLS) and cardiac arrest, including the role of family members in providing immediate life-saving assistance to individuals experiencing cardiac arrest. In addition, the PKM team provided education on the management of pre-anesthesia assessment (AMPLE) for families and patients with hypertension as a comorbid condition. All activities proceeded smoothly and effectively.

After the educational session, a practical demonstration of BLS was conducted with several family members who were waiting for their relative's

undergoing surgery in the IBS waiting area. The demonstration activities were carried out successfully, with participants able to follow the procedures well.

Figure 2. AMPLE Education Session

Figure 3. Basic Life Support (BLS) Education Session

Figure 4. Community Service Team

DISCUSSION

Hypertension is one of the most common comorbidities encountered in patients undergoing surgical procedures or anesthesia in the operating room (OR). Both essential hypertension and gestational hypertension directly affect the patient's hemodynamic stability during the induction, maintenance, and recovery phases of anesthesia. Clinically, poorly controlled hypertension increases the risk of perioperative complications, including bleeding, cardiac arrhythmias, perioperative stroke, and sudden cardiac arrest (Wahyudi et al., 2018; Natungga et al., 2024). Therefore, patient and family readiness particularly regarding the patient's health status, medical history, and medication use plays a crucial role in ensuring perioperative safety. In this context, pre-anesthesia education using the AMPLE framework (Allergy, Medication, Past Medical History, Last Meal, and Environment/Event) serves as a systematic strategy to enhance patient and family understanding of pre-anesthesia health assessment. The AMPLE approach functions not only as a clinical assessment tool but also as an effective communication framework between patients, families, and the anesthesia team, enabling clear identification of essential information such as antihypertensive use, anesthetic allergies, history of hypertensive crises, and fasting status prior to anesthesia administration (Kumar et al., 2013; Mangku & Senapathi, 2010).

A number of studies have demonstrated that structured preoperative education significantly reduces anxiety, increases patient knowledge, and improves adherence to pre-surgical medical instructions (Guo, 2015; Fecher-Jones et al., 2024). Poorly managed anxiety can trigger sympathetic activation, causing elevations in blood pressure that may lead to surgical postponement due to increased perioperative risk (Tait & Sear, 2021).

Thus, AMPLE-based pre-anesthesia education delivered to family members not only enhances their knowledge but also provides a sense of reassurance and control over the situation, particularly for families of hypertensive patients who may already be concerned about potential critical events.

Furthermore, AMPLE-based pre-anesthesia education is especially relevant in surgical procedures involving pregnant women with gestational hypertension or preeclampsia. These conditions carry a high risk of severe complications such as eclampsia, HELLP syndrome, and multi-organ failure (Kartika et al., 2022). In such cases, obtaining comprehensive information on the maternal medical history is essential because many antihypertensive and anticonvulsant medications interact with anesthetic agents. Through the AMPLE approach, families can understand why certain medications must be continued before surgery to prevent sudden intraoperative spikes in blood pressure during anesthesia induction. This aligns with international anesthesia guidelines emphasizing that continuation of specific antihypertensive agents, particularly beta-blockers, is critical for maintaining intraoperative hemodynamic stability (American Society of Anesthesiologists, 2012).

However, even with optimal pre-anesthesia assessment, the risk of cardiovascular emergencies remains possible in hypertensive patients, particularly during the transition phases of anesthesia or the early postoperative period. One of the most fatal emergencies requiring immediate intervention is cardiac arrest. In such cases, the speed of first-responder action significantly determines survival outcomes. Basic Life Support (BLS) is the first critical step in the chain of survival when cardiac arrest occurs. BLS literacy and competency are therefore essential not only for healthcare providers but also for family members accompanying patients, especially in OR-adjacent areas where sudden events may occur before the medical team can initiate advanced interventions (Riantini, 2022).

Population-level studies have demonstrated that BLS training significantly increases readiness for rapid action and improves resuscitation success rates. A national study in Denmark reported that regions with higher BLS training rates had significantly better out-of-hospital cardiac arrest survival outcomes (Jensen et al., 2023). A recent meta-analysis also found that CPR training for families and the general public increases the likelihood of patients receiving high-quality chest compressions before medical personnel arrive, which directly correlates with higher return of spontaneous circulation (ROSC) rates (Tabata et al., 2024). In the OR setting, where hypertensive patients often experience hemodynamic instability due to anesthetic complications, providing BLS training to families offers an additional and essential safety layer.

The implementation of AMPLE-based education and BLS training in the community service program at Bangli Regional Hospital demonstrated that this combined intervention effectively enhanced family understanding of the importance of pre-anesthesia assessment and improved their preparedness for emergency situations. The educational process was delivered through direct teaching, followed by BLS demonstrations

using manikins, allowing families to immediately practice correct chest compression techniques. Hands-on practice has been shown to be the most effective method for developing procedural skills and participant confidence compared with didactic approaches alone (Lee et al., 2016; Onan et al., 2019). Family responses during the program indicated improved skills and positive attitudes towards active participation in patient safety, reinforcing the idea that families are not merely passive companions but can become meaningful partners in safety initiatives.

In conclusion, AMPLE-based pre-anesthesia education and BLS training are not only clinically relevant but also aligned with modern patient-safety principles that position family members as active partners in the continuum of care. The implementation of this community service team activity provides added value for healthcare institutions and academic organizations by supporting the fulfillment of the Tri Dharma of Higher Education and strengthening community-based patient safety practices. The integration of AMPLE education and BLS training has been shown to improve the knowledge, skills, and preparedness of families in supporting the perioperative safety of hypertensive patients in the OR, making this educational model a strong candidate for sustained and broader implementation in perioperative services.

CONCLUSION

The BLS and AMPLE education session in the pre-anesthesia setting was conducted successfully and received enthusiastic participation from attendees in the waiting area of the Central Surgical Installation at Bangli Regional General Hospital. Participants were able to correctly perform BLS demonstrations when requested by the community service team, following the appropriate sequence of layperson CPR procedures. The AMPLE counseling session was also well understood, as reflected by participants' ability to answer four questions posed by the team.

It is recommended that AMPLE education and Basic Life Support (BLS) training be implemented as a routine program in the IBS waiting area, given their substantial benefits in enhancing family preparedness for anesthesia procedures and potential emergency conditions. The provision of additional educational media such as leaflets, posters, or short videos may further strengthen patient families' understanding.

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