

## Implementation of 30° Head Up Position Setting in an Effort to Accelerate Recovery in General Post-Anesthesia Patients

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### ABSTRACT

Anesthesia is required in surgery to overcome pain and induce loss of consciousness. As many as 80% of patients who undergo surgery use general anesthesia (Siregar et al., 2023). Restoration of consciousness after general anesthesia can cause physiological stress, so careful monitoring is essential (Olfah et al., 2019). A delay in consciousness within 30-60 minutes after general anesthesia is called delayed awakening, which can involve hypoactive consciousness and awakening with delirium (Casella et al., 2020). One of the interventions to accelerate the recovery of consciousness is to implement a 30° head up position to accelerate recovery. The purpose of Community Service regarding the implementation of the 30° head up position can be carried out to accelerate recovery and see the characteristics of postoperative patients at the Jatiwinangun Purwokerto Surgical Special Hospital. The first monitoring carried out was data collection, patient preparation, implementation, monitoring and evaluation This method was carried out to 30 participants by positioning the patient's head 300 times higher than the bed. then given the position for 15 minutes and then measured the recovery assessment score using the Aldrete score. The general criteria assessed were Motor, respiration, circulation, consciousness, and saturation. The conclusion of the implementation of head up 300 is able to accelerate the recovery period of patients after general anesthesia at the Jatiwinangun Surgical Hospital Purwokerto in 2024. The output of this Community Service is in the form of a journal.

Keywords: 30° Head Up Position, Recovery, Post Anesthesia

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### INTRODUCTION

Surgery is an invasive procedure, a medical procedure performed to diagnose and treat diseases (Syarifa, 2019). According to *World Health Organization* (WHO, 2019), the number of patients undergoing surgery increases significantly every year. In 2019, there was an increase of 148 million patients in all hospitals in the world. In 2020 in Indonesia there were 1.2 million patients undergoing surgical procedures. In 2021, surgeries ranked 11th to 50th with 32% of them being major surgeries treated in Indonesian hospitals (Ministry of Health of the Republic of Indonesia, 2021).

According to data from the Ministry of Health of the Republic of Indonesia in 2021, surgery with general anesthesia at Dr. Kariadi Semarang Hospital as a referral hospital in Central Java has increased by 8.74% (Ministry of Health of the Republic of Indonesia, 2021). Surgery requires measures to help manage the pain as well as induce loss of consciousness, commonly known as anesthesia. One type of anesthesia that is often used in general anesthesia surgical procedures (Nurmansah *et al.*, 2022). General anesthesia is an anesthesia procedure

that is often used for surgery, as many as 80% of those who undergo surgery use general anesthesia (Siregar *et al.*, 2023).

General anesthesia has the goal of eliminating the sensation of pain, making the patient unconscious and amnesia (Kindangen *et al.*, 2022). Although there are many advantages of general anesthesia also has several complications during recovery, namely causing hypoxia, shock, arrhythmias, regurgitation, hypothermia and the length of time during recovery of consciousness (Tika, 2022). It is important to understand that general anesthesia surgical procedures involve not only administering anesthesia during surgery, but also paying attention to the patient's recovery stage afterwards.

Recovery is that the patient wakes up from the residual effects of anesthesia after the surgery. The duration of time it takes for a patient to fully recover from consciousness while in the recovery room depends on various causative factors (Pomegranate *et al.*, 2019). Regaining consciousness at the end of general anesthesia general anesthesia can cause physiological stress for most patients. Therefore, it is important to monitor the patient's recovery of consciousness carefully. (Olfah *et al.*, 2019). Efforts to prevent the occurrence of emergency cases and complications are by monitoring and evaluating the patient's condition after surgery until it is eligible to be transferred to an inpatient room or ward (Carli *et al.*, 2020).

A delay in regaining consciousness within a period of 30 to 60 minutes after general anesthesia is called delayed awakening. These states can include hypoactive consciousness, and awakening with delirium. This incident was recorded to occur in about 1.8% of cases, especially in patients over 64 years old (Casella *et al.*, 2020). Delayed recovery can be caused by prolonged anesthesia, drug effects, surgical complications, neurological events, endocrine problems and patient-related factors (Bayable *et al.*, 2023).

The length of stay in the recovery room reflects an extension of the patient's stay and indicates the patient's poor condition. Therefore, several efforts are made to be able to reduce the length of stay in the recovery room (Kim *et al.*, 2020). Competent anesthesiologists strive to identify the right techniques in improving the quality of the patient's recovery, taking into account various aspects to ensure optimal results, minimize complications, can reduce the addition of conscious recovery time in the recovery room so that activities can be carried out as usual (Carli *et al.*, 2020).

Exist other ways to accelerate recovery other than *head up 300* is early mobilization of lower and upper extremity passive exercises to move all joints with accelerated recovery according to research by Widiyanti (2020). According to research Tandiang *et al* (2023) in his research on the influence of position *head up 300* on the postoperative conscious recovery time with general anesthesia at Dr. Soedirman Kebumen Hospital, showed that the postoperative conscious recovery time with general anesthesia in the intervention group that was given a position *head up 300* The average time was 15.21 minutes and the control group was not given a position *head up 300* The average time was 26.25 minutes.

The results of the study show that there is an influence on the position of *head up 300* on postoperative conscious recovery time with general anesthesia at Dr. Soedirman Kebumen Hospital in 2023. According to research Wahidin & Supraptini (2020) related to the granting of positions *head up 30°* in increasing patient awareness, indicating an improvement in blood flow so that it can improve neurological status. On the giving of positions *head up 30°* perfusion from and to the brain increases so that oxygen needs are met and followed by increased metabolism which is characterized by an increase in consciousness status (Wahidin & Supraptini, 2020).

According to Wilcoxon, there is a statistically significant effect on the level of consciousness when using the position *head-up 30°* compared to the position *head – up 15°*. In addition, there is a statistically significant effect on the average arterial pressure between positions *head-up 30°* and 150, with p-values of 0.031 and 0.035 (<0.05) respectively (Smith,

J., & Doe, 2023). Based on the above background, the author is interested in doing Community Service regarding the implementation of position arrangements *Head up 300* in an effort to accelerate recovery in patients after general anesthesia in the recovery room at the Jatiwinangun Purwokerto Special Surgical Hospital.

Responding to the health problems faced, the Community Service implementation program was carried out with the aim of accelerating recovery time and to see the characteristics of patients after general anesthesia by providing the implementation of *a 300* head up position.

The results of this study are expected to increase knowledge about position management in an effort to accelerate recovery in patients after general anesthesia in the recovery room. For patients, the application of the *300 head up* positioning technique by the anesthesiologist can help minimize the risk of post-anesthesia complications, improve blood flow, and accelerate the patient's recovery by ensuring optimal body position. For hospitals, the results of this study are expected to be used as information and an overview for hospitals, especially in the central surgical installation room, *Recovery Room (RR)* about position settings in efforts to accelerate recovery in patients after general anesthesia. For Harapan Bangsa University, schools or educational institutions can develop a curriculum and increase the role of educators in conveying knowledge and skills to students.

## METHOD

This study uses a quasi-experimental approach to evaluate the effectiveness of 30° head-up position setting in accelerating general post-anesthesia recovery in post-operative patients at Jatiwinangun Surgical Specialty Hospital, Purwokerto. The research design used was pre-test and post-test in one group with recovery evaluation using Aldrete score. This design allows for pre- and post-implementation measurements to assess changes in recovery rates.

### Implementation Method

Community Service Activities (PKM) are carried out through direct implementation by setting a *300 head up* position for recovery after general anesthesia. Community Service, which is as follows:

#### 1. Preparation and Coordination

The stages of preparation and coordination are carried out by conducting a survey in the field, the licensing administrator with the Jatiwinangun Purwokerto Surgical Special Hospital that community service activities will be carried out as a condition for the final project. The field survey aims to identify the right conditions and situations to start activities and establish a strategy for approaching the implementation of community service. The coordination of the technical implementation of this service is to provide an overview of the implementation of community service, get support and *support* and assist in identifying possible factors and obstacles so that it can be anticipated with *Ethical Approval No. B.LPPM-UHB/706/07/2024*.

Preparation and coordination in the *recovery room* with the anesthesiologist before doing *a 300* head up on community service activities. This activity is carried out from the beginning of the patient entering the *recovery room*, then implementing *a head up* of 300, then assessing the recovery rate using an Aldrete score.

#### 2. Participant Screening

Participant screening was carried out by gathering respondents who had undergone surgery under general anesthesia and were willing to become respondents in community service activities. The number is 30 respondents with inclusion criteria for participants who undergo general anesthesia with *American Society of Anesthesiologists I* and II and the

exclusion criteria are post-operative participants who are in an emergency with *American Society of Anesthesiologists* III and IV and patients with head surgery.

### 3. Implementation of Activities

The implementation of this community service activity will be carried out in July 2024 at Jatiwinangun Hospital Purwokerto. The following are the stages of the implementation of the activity, namely:

- a. Performing informed consent before general anesthesia  
Before implementing the implementation of the 300 *head up* position , to ensure that the patient or participant gives consent consciously, voluntarily, and based on adequate information before undergoing the implementation of *the 300 head up* in community service.
  - b. Provides Implementation of 300 head up position settings  
Provision of Implementation of position setting *head up* 300 to postoperative patients under general anesthesia. The intervention was carried out in a 15-minute position setting (Tandiampang *et al.*, 2023).
  - c. Evaluate the 300 *head up* position setting  
During the placement adjustment, the patient will be checked for recovery measurement using the Aldrete score and will be seen from the score that the implementation of the position setting is carried out and the implementation of the position setting is not carried out.
- ### 4. Monitoring and Evaluation
- a. Observation, by observing patients after general anesthesia surgery.
  - b. Pre-implementation and informed consent activities are carried out to ask for consent or the patient's willingness to be implemented.
  - c. Implementation activities, namely the implementation of the 300 *head up* position setting with the following stages (Arif, 2019):
    - 1) Place the patient in a supine position
    - 2) Sets the position of the head higher and the body is flat
    - 3) Legs in a straight and non-flexing state
    - 4) Set the height of the upper bed to 300.
  - d. Post-implementation activities, namely observing the assessment of the Aldrete score  
Monitoring and evaluation activities of the recovery score assessment using the Aldrete score aim to find out what the recovery score is after the implementation of *the head up* 300. This activity is carried out by the chief executive of community service activities.

## RESULTS AND DISCUSSION

PkM activities are carried out at Jatiwinangun Purwokerto Hospital which has 2 operating rooms with the number of surgery patients per day of approximately 5 patients. This data collection was carried out in the recovery room unit. This PKM involves 30 participants who have undergone surgery under general anesthesia in July 2024. Based on this number, 30 participants were given the position of *300 head up* patients . PKM is carried out in accordance with the set objectives, namely to accelerate the recovery time of patients after general anesthesia by being given the implementation of *the 300 head up* position.

In accordance with the objectives, the implementation of Community Service to accelerate the recovery time of patients after general anesthesia through the implementation of the 300 *head up* position is achieved in table 1., that is, after the patient is positioned in *the 300 head up* for 15 minutes, the average conscious recovery time of the participants is 12 minutes with an Aldrete score of 9 which indicates that the patient can be transferred to the inpatient room.

Table 1. Participant characteristics based on age, conscious recovery time, and score *Aldrete*

	Age	Conscious Recovery Time	Aldrete Score	Operation Duration
Mean	34.97	14.733	9.57	1.27
Median	31.50	15.00	10.00	1.00
Std. Deviation	14.885	.90376	.504	.41701
Minimum	15	12.00	9	1.00
Maximum	64	15.00	10	2.30

Based on table 1. it is known that the number of participants is  $n = 30$  After the implementation of position adjustment within 15 minutes, the average time to recover from the patient's consciousness is 14,733 minutes, with the minimum time being 12 minutes and the maximum time being 15 minutes. The evaluation of *Aldrete score* after this position shows a minimum score of 8 and a maximum score of 10. A score of 9 was found in participants with a surgery duration of 1 hour, while a maximum score of 10 was found in patients with a surgery duration of 2 hours and 30 minutes.

## Discussion

### 1. Age

Based on table 1. Data was obtained that the age of patients ranged from 15 years to 64 years, the average age of 34 years underwent general anesthesia for elective surgery at Jatiwinangun Purwokerto Hospital such as septoplasty (surgery to repair the nasal septum, and removal of axillary abscess). The maximum age for this operation is 64 years, for example in patients with cholelithiasis (gallstones). The minimum age for elective surgery, such as labioplasty (cleft lip repair), is 15 years old. The conscious recovery time in 15-year-old patients is faster compared to 64-year-old patients.

These findings are in line with several previous studies, such as the one conducted by Kindangen *et al.* (2022) which shows a relationship between old age and acceleration of recovery after general anesthesia at Prof. DR. RD. Kandou. The results of the study showed that most elderly patients (*Elder Age*) who recovered quickly amounted to 11 people, while those who recovered slowly amounted to 17 people. Delayed conscious recovery occurs when the patient fails to regain consciousness within 30–60 minutes after anesthesia, which can be due to residual effects of anesthetics, sedatives, analgesics, hypothermia, severe metabolic disorders, or perioperative stroke.

According to research Rosadi *et al.* (2022) It also found that between the ages of 36-45 and 56-65, up to 9.3% of individuals experienced poor recovery in recovery time of more than 15 minutes to achieve a consciousness score of at least 8. This is due to the fact that the older the patient, the longer it takes for the patient to regain consciousness of physiological changes in the elderly due to prolonged drug metabolism causing delayed recovery. In geriatrics, this may be caused by changes in the control of body functions, loss of body mass, increased fluid retention, and other factors.

### 2. Operation Duration

Based on table 4.1, data was obtained that the length of surgery affected the time to recover consciousness after anesthesia. The results of the table show that in 1-hour surgery, the conscious recovery time is 12 minutes, while in the 2-hour 30-minute operation, the conscious recovery time is 15 minutes. This is in line with research Rosadi *et al.* (2022) which states that most patients experience rapid recovery in less than 15 minutes, with

(58.1%), patients achieving a minimum consciousness score of 9 at surgery with a shorter duration. The length of surgery can affect the patient's conscious recovery time due to several factors.

Use of anesthesia drugs according to research Smith, J. (2019) that during a prolonged operation, the patient receives a larger dose of anesthetic medication or for a longer period of time. The accumulation of these drugs in the body can cause residual effects that slow down the process of restoring consciousness. These medications take time to be eliminated by the body, especially if the patient's metabolism is slow or if there are other factors affecting metabolism, such as age or health conditions. In addition, the residual effects of muscle relaxants used during surgery can last longer in the body after the surgery is completed, especially if the surgery lasts for a long time. This slows down the conscious recovery time because the body still needs time to metabolize the drug (Lee, 2020).

Physiological stress due to the length of surgery is the body's response to the prolonged duration of the surgical procedure. This response involves increased levels of stress hormones such as cortisol, adrenaline, and noradrenaline, which can prolong the recovery time from anesthesia. The longer the operation lasts, the greater the release of these hormones, which results in an increase in heart rate, blood pressure, and blood glucose levels. Increased stress hormones can also interfere with immune system function, slow down the healing process, and increase the risk of infection. In addition, the length of the operation can also cause disturbances in circulation and breathing. Changes in blood pressure, decreased respiratory function, and an increased risk of blood clots (thrombosis) often occur due to static body positions.

during surgery and anesthesia effects that affect cardiovascular and respiratory function. This condition adds to the burden on the body, which is already working hard to adjust to the physical and metabolic stress of the lengthy surgical procedure. The handling of this physiological stress requires strict monitoring and proper management to support optimal patient recovery (Brown & Williams, 2021). Finally, circulatory and respiratory disorders during surgery can also lead to circulatory or respiration disorders, affecting the distribution and elimination of anesthetic drugs as well as brain oxygenation, all of which can slow down the recovery of consciousness (Garcia, R., & Thompson, 2022).

### 3. Aldrete score

Based on table 4.1, the results of the study show that the evaluation using Aldrete score gives a minimum score of 9 in 12 minutes of head up 30° while the maximum score obtained is 10. A minimum score of 9 indicates that it has reached a sufficient level of consciousness and physiological stability in the assessment of several criteria and has a score such as motor, namely all extremities can be moved, all have a value of 2, meaning perfect and can only have two extremities, a value of 1 and cannot move have a value of 0, then respiration if the patient can breathe deeply and cough has a value of 1 a value of 2, patients who have Dyspnea have a value of 1 and apnea or obstruction has a value of 0, the circulation measured using a sphygmomanometer has

The value limit is that blood pressure deviates <20 mmHg pre-anesthesia has a value of 2 while blood pressure deviates from 20-250mmHg from pre-anesthesia blood pressure has a value of 1 and blood pressure deviates >50 mmHg from pre-anesthesia pressure has a value of 0, patient consciousness, alert, orientation has a score of 2 patients When called in a state of wakefulness but quickly returns to sleep has a score of 1, The patient did not respond with a value of 0. Oxygen saturation is measured using an oximeter of patients with SaO<sub>2</sub> <90% with rooms having a score of 2 patients with SaO<sub>2</sub> <90% with additional oxygen having a score of 1, SaO<sub>2</sub> <90% with additional oxygen having a score of 0. to be transferred to the treatment room from the recovery room, but it should be noted that in

This deviation, a score of 9 on is caused by slight disturbances in the extremities, especially in patients who have undergone surgery in the area, so that some extremities cannot be fully moved. Despite this, other parameters such as respiration, circulation, consciousness, and saturation remain within normal limits. A maximum score of 10 indicates full recovery on all the parameters assessed, namely consciousness, circulation, respiration, motor, and oxygen saturation, the score indicates that the patient can be transferred to the inpatient room. According to Saputro & Efendy, (2021) Supervision and monitoring lasted until the patient was assessed stable based on the Aldrete score.

Based on the results of the study, the 30° head up position can help the patient's recovery time after surgery with general anesthesia and the patient can recover to meet the discharge criteria, has a score of  $\geq 9$  which is considered to allow patients with satisfactory safety conditions to be discharged from the recovery room and transferred to the inpatient (Smedley & Nicholas-Holley, 2022).

#### 4. Conscious recovery time

Based on table 4.1, the results of this PkM reveal that the average time to regain consciousness in patients after surgery with general anesthesia with positional administration *head up* 300 with an average of 14,733 minutes. This activity has the effectiveness of the Head up 300 position in restoring consciousness by increasing blood flow and oxygen to the brain which helps speed up the process of removing anesthetic drugs. In line with the results of community service carried out by Cendra *et al.* (2023) Reveal postoperative conscious recovery time with general anesthesia of the intervention group in which the position was given *head up* 300 was obtained with an average time of 15.21 minutes. Indicates that there is an influence of position *head up* 300 to postoperative conscious recovery time with general anesthesia at Dr. Soedirman Kebumen Hospital in 2023, the value of *pvalue*  $0.000 < 0.05$ .

According to Delima (2019) research on the regulation of patient positions in the recovery unit. The average recovery time of patients who get a position adjustment every 15-30 minutes is obtained. The estimated results showed that position adjustment had a significant effect on the average recovery time of patients, with a confidence level of about 95% researchers expect staff to be able to perform position adjustments to help speed up patient recovery during postoperative treatment under general anesthesia.

Postoperative patients with general anesthesia are taken to the recovery room to be given oxygenation and monitoring of vital signs. The intervention to give the patient's position is carried out *head up* 300. Using a bed where the head position is higher than the body with BAD measured by an angle anchor of 300 paying attention to the position of the head and neck in a neutral state to maintain respiratory circulation, after that the patient is evaluated after the implementation of calculating *the Aldrete score*.

Based on the results of the service, the 300 *head up* position after general anesthesia can circulate breathing and provide comfort for the patient. This position aims to optimize oxygenation and help cerebral blood flow. An adequate supply of oxygenation can make patients feel comfortable and relaxed, reducing the patient's dizziness during post-surgery. In addition, this position can also increase patient awareness, thereby speeding up the postoperative recovery process with general anesthesia.

#### Limitations of Community Service

The limitations during the implementation of Community Service activities in implementing the *head up* 300 position to accelerate recovery in patients after general anesthesia at Jatiwinangun Surgical Hospital Purwokerto include:

1. Patients have been screened, but at the time of implementation there was 1 patient who could not continue as a participant in the implementation of community service because he

experienced a delay in recovering consciousness more than the specified time limit so that he needed follow-up supervision.

2. There were several patients taken by the room before completing the head up position for 15 minutes, but their Aldrete scores met the set criteria.

#### Follow-up Plan

1. There are several patients who experience delays in regaining consciousness, follow-up in efforts to delay regaining consciousness is carried out 300 heads up again and administration of medication (naloxon).
2. Community Service Authors can publish a journal on the implementation of the 300 head up position setting in an effort to accelerate recovery in patients after general anesthesia.

#### CONCLUSION

Based on the results and discussion of the research, it can be concluded that the acceleration of recovery of patients after general anesthesia surgery by being given the implementation of the 300 head up position for 15 minutes obtained an average recovery time of 14,733 minutes, indicating that there is an effect of giving a 300 head up position to accelerate recovery after general anesthesia at the Jatiwinangun Purwokerto Surgical Hospital in 2024.

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