

## The Relationship Between Hemoglobin Levels And Wound Healing Post Sectio Caesarea At RSUD Rantau Prapat

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### ABSTRACT

Sectio caesarea or cesarean section is an operation that aims to remove the baby through an incision in the abdominal wall and uterine wall provided that the uterus is intact and the fetal weight is above 500 grams. This study aims to analyze the relationship between hemoglobin levels and post-sectio caesarea wound healing at RSUD Rantau Prapat. The type of research used is quantitative with an observational research design with a prospective cohort approach. The research was conducted in July 2021 at RSUD Rantau Prapat. The population in this study was all post sectio caesarea patients treated in June-July 2021. The population in this study was 27 people. The sampling technique in this study is a total sampling technique so that the number of samples in this study is 27 people. The results of the study conducted with the chi square test were obtained p values of 0.001 <0.05, meaning that there was a statistically significant relationship between hemoglobin levels and wound healing sectio caesarea at RSUD Rantau Prapat. It is recommended to health workers to take blood hemoglobin in patients sectio caesarea twice at 24 hours after sectio caesarea surgery, and at the time of control at the obstetric poly a week after surgery.

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### INTRODUCTION

Sectio caesarea or cesarean section is an operation that aims to remove the baby through an incision in the abdominal wall and uterine wall provided that the uterus is intact and the fetal weight is above 500 grams (Wiknjastro, 2017). Sectio caesarea is the main choice of action for medical personnel to save the mother and fetus which is carried out on the basis of certain medical indications, namely fetal distress, cephalopelvic disproportion, non-advanced labor, placenta previa, umbilical cord prolapse, fetal percentage malflow (Norwitz & Schorge, 2017), narrow pelvis and preeclampsia (Jitowiyono & Kristiyanasari, 2015). Sectio caesarea (SC) is an action to remove babies weighing over 500 grams with incisions in the uterine wall that are still intact (Saifudin, 2015).

Wounds are defined as loss of tissue or skin continuity caused by trauma or surgical procedures (Agung, 2015). Sectio caesarea is also a surgical procedure. The wound healing process will go through several stages, namely inflammation, proliferation, fibroblastic and maturation (Hendro, 2015). The healing of surgical wounds is greatly influenced by the supply of oxygen and nutrients into the tissues (Kartinah, 2016). This oxygen functions in addition to biological oxidation as well as tissue oxygenation (Guyton, 2012). Clinically the wound has shown no signs of erythema, warmth on the skin, oedema and pain (inflammatory phase) after the 3rd or 4th day (Jong, 2012). So that in normal care, postpartum mothers will be safer to go home after the 4th or 5th day (Cunningham, 2013). However, in theory, wounds should be observed until 7 days after surgery, where wound healing phase collagen formation begins with marked fuse of skin tissue (Abadi, 2017).

The physiological process of wound healing goes through four stages, namely the hemostasis phase, the inflammatory phase, the proliferative phase and the tissue remodeling phase. In addition to the four phases of wound healing, there are two factors that affect the wound healing process,

namely local factors and systemic factors. As for local factors of wound healing, namely oxygenation, infection, foreign bodies and venous sufficiency. While systemic factors, namely age, sex, sex hormones, stress, ischemia, the presence of a disease such as diabetes, obesity, drugs such as steroid glucocorticoids, alcoholism, smoking, immunocompromised conditions and nutrition (Guo & DiPietro, 2014). If oxygen levels in the body are inadequate, the wound healing process will be less effective because the body experiences a decrease in the capacity of oxygen transported by the blood and is unable to form new body cells (Morison, 2018).

Normal hemoglobin levels of pregnant women are  $>11$  g / dl. At the time of post partum, hemoglobin levels are at least 10 g / dl (Abadi, 2017). If the hemoglobin level is less than that amount, it will cause a hemodilution condition, which is a condition where the blood is diluted so that it will interfere with oxygen circulation caused by excessive body evaporation and low hemoglobin (Dharma, 2017). Hemoglobin and oxygen levels in the body have an important role in the body's circulatory system. If hemoglobin and oxygen levels drop during surgery, the skin tissue will not immediately fuse due to the surgical wound because the blood supply to the tissue is reduced. The healing of Sectio Caesarea wounds is greatly influenced by the supply of oxygen and nutrients into the tissue which can be seen through examination of hemoglobin levels of post-Sectio Caesarea mothers with low hemoglobin levels can affect the healing process of Sectio Caesarea surgical wounds (Wiknjastro, 2017).

According to the World Health Organization (WHO), the average standard of Sectio Caesarea in a country is around 5-15% per 1000 births in the world. Government hospitals are approximately 11% while private hospitals can be more than 30% (Gibbons, 2016). The increase in deliveries with Sectio Caesarea across the country during 2013 - 2014 was 110,000 per birth across Asia (Kounteya, 2017). The incidence of sectio caesarea in Indonesia has increased in 2017 with the percentage of the number of maternity mothers with Sectio Caesarea 47.22%, in 2018 by 45.19%, in 2019 by 47.13% (Grace, 2020). National Survey in 2017, 921,000 deliveries with Sectio Caesarea out of 4,039,000 deliveries or about 22.8% of all deliveries. Based on Riskesdas data in 2018, the delivery rate of Sectio Caesarea was 15.3% of the sample of 20,591 mothers who gave birth in the last 5 years interviewed in 33 provinces.

According to data from Riskesdas in 2018, the incidence of Sectio Caesarea childbirth in North Sumatra Province at the age of 15-49 years was 23.89%, while those with normal delivery were 75.95 and others were 0.17%. Data on Sectio Caesarea delivery at RSUD Rantau Prapat from January 2021 to June 2021 amounted to approximately 164 patients with indications of Sectio Caesarea delivery due to failed induction, premature rupture of membranes, latitude location and multigravida mothers with a history of previous Sectio Caesarea childbirth.

Based on the background above, wound healing is very important to pay attention to because of the large number of deliveries of Sectio Caesarea. Because there are several wound healing factors, one of which is oxygenation related to the body's hemoglobin levels, so researchers are interested in conducting research on the relationship between hemoglobin levels and post-sectio caesarea wound healing at RSUD Rantau Prapat.

## METHOD

The type of research conducted is quantitative research with an observational research design with a prospective cohort approach. This study aims to analyze the relationship between hemoglobin levels and post-sectio caesarea wound healing at RSUD Rantau Prapat. The study was conducted at Rantau Prapat Regional General Hospital. The sampling technique with the Total Sampling technique method with a total sample of 27 people. The measuring instruments used are hemoglobin levels and REEDA scale (Redness, Edema, Ecchymosis, Discharge, Approximation). This study used a chi square test with a p value of  $<0.05$  to determine whether or not there was a

relationship between hemoglobin levels and post-sectio caesarea wound healing at Rantauprapat Regional General Hospital.

## RESULTS AND DISCUSSION

### Result

Based on the results of the study, the characteristics of respondents, namely age and parity, can be seen in the table below.

**Table 1.** Distribution of respondents' frequency by age and parity

No	Age (Years)	Frequency (amount)	Percentage (%)
1	10-20	2	7,4
2	21-30	7	25,9
3	31-40	16	59,3
4	41-50	2	7,4
	<b>Total</b>	<b>27</b>	<b>100</b>

  

No	Paritas	Frequency (amount)	Percentage (%)
1	Paritas 1	6	22,2
2	Paritas 2	14	51,9
3	Paritas 3	7	25,9
	<b>Total</b>	<b>27</b>	<b>100</b>

Based on the table above, based on the age of the majority of respondents aged over 31-40 years, which is 16 people (59.3%), based on parity, the majority of respondents parity 2 as many as 14 people (51.9%). Based on research on hemoglobin (Hb) concentrations of postsectio patients, it can be seen in table 2 below.

**Table 2.** Hb Concentration

No	Hb concentration	Frequency	Percentage
1	Normal (> 11 g/dl)	23	85,2
2	Anemia (< 11 g/dl)	4	14,8
	<b>Total</b>	<b>27</b>	<b>100</b>

Based on the table above, the majority of Hb concentrations are normal as many as 23 people (85.2%), while anemia as many as 4 people (14.8%). Based on research on wound healing of post sectio patients, it can be seen in the table below.

**Table 3.** Wound healing

No	Wound healing	Frequency	Percentage
1	Good	24	88,9
2	Bad	3	11,1
	<b>Total</b>	<b>27</b>	<b>100</b>

Based on the table above, the majority of post-sectio wound healing after 9 days was good as many as 24 people (88.9%), while bad as many as 4 people (11.1%).

### Discussion

This study aims to determine the relationship between hemoglobin levels and wound healing sectio caesarea. Based on data on the characteristics of 27 study respondents, there were 23 people

(85.2%) who had normal hemoglobin levels and 4 people (14.8%) who had hemoglobin levels with anemia category. While wound healing variables are seen using the REEDA scale. Based on the results of the study, it was found that the value of the REEDA scale on day 9 was good as many as 24 people (88.9%), while bad as many as 4 people (11.1%).

Based on the results of the chi square test which has a p value of  $<0.05$ , which is a p value of 0.001, it means that there is a statistically significant relationship between hemoglobin levels and wound healing of sectio caesarea at RSUD Rantau Prapat. The results of this study are in line with Sulastri's research (2011) which states there is a significant relationship between hemoglobin levels and wound healing sectio caesarea. In the research of Pujiastuti and Hapsari (2014) stated that the wound healing process requires adequate oxygen supply, so the body needs enough hemoglobin to supply oxygen to the injured area. Low hemoglobin levels can cause hypoxia of the tissue around the wound, causing ischemia and inflammation which is the basis of a wound infection (Jahromi, et al., 2015). Wound healing occurs approximately 1 week after the onset of the wound (Smeltzer, 2002). Researchers made observations during the control schedule of sectio caesarea respondents, which is a week after the patient discharged from the hospital or the 9th day after sectio caesarea. The results of this study are in line with research conducted by Agung and Hendro (2005) with the theme of the effect of Serum Albumin Levels on the Duration of Surgical Wound Healing in the Digestive Surgery Department of Dr. Sardjito Hospital Yogyakarta. The results obtained that the respondents who were observed to heal wounds, obtained 29 (47.54%) patients recovered primary on the seventh day and 32 (52.46%) patients were declared cured but more than 7 days. None of the patients were excluded due to surgical wound infection. While the conclusion of his study stated that hypoalbumin can still be found in patients admitted to Dr. Sardjito Hospital, and there is a statistically significant relationship between serum albumin levels and the duration of wound healing.

The technique of sectio caesarea surgery in this study varies and has an influence on wound healing. If during the suturing process the incision wound is sutured too tightly and tightly, then the tissue around the wound will have difficulty in getting oxygenation because there is impaired blood flow and causes anemia and necrosis. Another case if the suturing is done a little loose and the tissue around the wound is given the opportunity to close naturally, then wound healing becomes more effective and the oxygenation obtained is also sufficient. In this suturing technique that is not too tight, it is expected that there will be a good approximation process or wound closure so that it quickly forms a collagenation in wound healing (Anon, 2013).

According to the researchers' assumptions, in addition to Hb which affects wound healing, the patient service system at RSUD Rantau Prapat also affects the results of research such as providing nutritional intake during hospitalization, as well as actions taken before, during, and after sectio caesarea to reduce morbidity and mortality rates, for example in respondents who are anemic before sectio caesarea will be transfused first so that the respondent's condition during surgery is in good condition. Confounding variables such as age, infection, and previous injury history have not been controlled as a whole.

## CONCLUSION

The majority of Hb concentrations were normal as many as 23 people (85.2%), while anemia as many as 4 people (14.8%). The majority of post-sectio wound healing after 9 days was good as many as 24 people (88.9%), while bad as many as 4 people (11.1%). Based on the results of the chi square test, a p value of 0.001 ( $<0.05$ ) was obtained, meaning that there was a statistically significant relationship between hemoglobin levels and wound healing of sectio caesarea at RSUD Rantau Prapat.

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