



LABORATORY ANALYSIS OF BLOOD IN PREGNANT WOMEN WITH PRE-ECLAMPSIA IN THE DELIVERY ROOM OF RSUD DR. R. KOESMA TUBAN.

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Abstract

Background: 30-40% of maternal deaths in Indonesia were caused by pre-eclampsia in 2018. Preeclampsia is a specific syndrome in pregnancy that can cause liver problems. Disorders can be characterized by abnormal laboratory results in the liver enzymes while in the kidney is indicated by the presence of proteinuria. Organ disorders can cause morbidity and death of the mother and fetus. This study aims to analyze the results of blood laboratory in pregnant women with preeclampsia in the delivery room of RSUD dr.R Koesma Tuban in 2020. **Method:** The research design is correlation analysis. The population of all pregnant women with preeclampsia in the delivery room at RSUD dr. R Koesma Tuban from January to June 2020, with a total of 102 people, a sample of 52 people used simple random sampling. The independent variable is preeclampsia, the dependent variable is the platelet level. Using the chi square test with a significance level of $p < 0.05$. **Results:** most of the pregnant women with severe preeclampsia 39 (75%), almost all 42 (81%) platelet levels were in the normal category. With a significance value of 0.115, then H_1 is rejected, meaning that there is no relationship between platelet laboratory levels in pregnant women and preeclampsia in the maternity ward of RSUD Dr. Koesma Tuban. **Conclusion:** there is no relationship between preeclampsia and platelet levels. So that it is hoped that research can be carried out on the causes of preeclampsia and other laboratory results

keyword : blood lab tests, pre-eclampsia, pregnant women

INTRODUCTION

Preeclampsia is a significant cause of maternal and fetal mortality worldwide, with incidence rates ranging from 0.51% to 38.4%. In developed countries, the incidence of preeclampsia ranges from 6% to 7%, while in developing countries, the mortality rate remains high (Betty & Yanti, 2011). In Indonesia, severe preeclampsia and eclampsia account for 30-40% of maternal deaths, and in East Java alone, maternal deaths due to preeclampsia ranged from 30% between 2014 to 2018.

According to the Maternal Death Report from the Tuban Regency Health Office in 2020, there were 22 maternal deaths, of which seven were caused by preeclampsia and eclampsia.





Preeclampsia/eclampsia was responsible for 31% of maternal deaths in Tuban, followed by amniotic embolism (1), hemorrhage (2), cardiac issues (6), and other causes (5). Preeclampsia/Eclampsia was the leading cause of maternal death in Tuban in 2020. At the RSUD Maternity Ward in 2020, three maternal deaths were due to preeclampsia and its complications, which is an increase compared to 2019 when only one maternal death occurred due to preeclampsia and its complications. Pregnant women who died due to preeclampsia also experienced eclampsia and other complications such as HELLP syndrome, characterized by hemolysis, elevated liver enzymes, and low platelet count.

Based on a case study of three pregnant women who experienced death, abnormal laboratory examination results were found, specifically platelet examination and Proteinuria results (Primary data source of RSUD, 2020). Severe preeclampsia and eclampsia pose dangerous risks to both the mother and fetus. Failure to detect and treat preeclampsia can result in eclampsia and seizures. Similarly, if eclampsia is not properly treated, it can lead to loss of consciousness, multi-organ failure such as heart, kidney, liver failure, or cerebral hemorrhage. Thus, the incidence of seizures in patients with severe preeclampsia and eclampsia should be avoided as it causes 5% or higher mortality (Omilabu et al., 2014).

To reduce the morbidity and mortality of pregnant women, one effective measure is to conduct laboratory tests of blood and urine as early as possible. This examination aims to detect any health problems, especially when high blood pressure is found during pregnancy. Laboratory tests should be conducted immediately to distinguish whether the high tension is due to preeclampsia or other causes.

Midwives and other healthcare workers at health centers and clinics can also conduct early detection based on laboratory results to enable timely and planned referrals and coordination with hospitals that provide care for pregnant women with preeclampsia. Therefore, it is crucial to perform an analytical study of blood and urine laboratory results of preeclampsia patients in the Maternity Room of RSUD dr. Koesma Tuban. Laboratory testing serves as an early detection tool for adverse conditions in pregnant women with preeclampsia. Relevant laboratory tests include complete blood count, blood chemistry, and urinalysis. By knowing the results of these tests, midwives can take immediate actions according to the patient's condition to reduce or prevent life-threatening complications.

METHOD

The research design employed in this study is correlational analytic with a cross-sectional approach, and the sampling technique used is simple random sampling. The

population for this study comprises all maternity mothers who experienced preeclampsia, totaling 56 respondents, with a sample size of 52 respondents who met the inclusion and exclusion criteria. The independent variable in this study is platelet count, while the dependent variable is the incidence of preeclampsia. The data obtained from the study were analyzed using the Chi Square test.

RESULT AND DISCUSSION

Laboratory results of platelet levels in pregnant women with preeclampsia at the Delivery Room of RSUD Dr. R. Koesma Tuban.

Table 1 the frequency distribution of platelet levels in pregnant women with preeclampsia at the Delivery Room of RSUD Dr. Koesma Tuban in 2020.

Platelet Levels	Frequency	Percentage (%)
Normal	42	81
Abnormal	10	19
Total	52	100

It has been observed that among 52 pregnant women diagnosed with preeclampsia, the platelet laboratory results indicating normal values were almost entirely 42 (81%).

Table 2 The frequency distribution of preeclampsia in pregnant women in the delivery room of Dr Koesma Tuban Hospital in 2020

Preeclampsia	Frequency	Percentage (%)
PE	13	25
SEVERE PREECLAMPSIA	39	75
Total	52	100

The majority of pregnant women with preeclampsia who received treatment at Maternity Hospital Dr. Koesma Tuban in 2020 were those with early onset preeclampsia comprising 75% (39 individuals) of the total population.

Table 3 presents the cross-tabulation analysis of platelet levels among pregnant women with preeclampsia in the Maternity Room of RSUD Dr. Koesma Tuban in 2020.

	Normal	Levels %	Platelet Abnormal	%	Total	%
PE	13	100	0	0	13	100
SEVERE PREECLAMPSIA	32	82,05	7	17,95	39	100

The Chi-square test results indicate an exact significance (2-sided) p-value of 0.115, suggesting that there is no association between Preeclampsia and platelet levels in pregnant women with Preeclampsia in the delivery room of Dr. Koesma Tuban Hospital. Platelets play a crucial role in hemostasis, including adhesion, aggregation, and release reaction (Hoffbrand,



2016). Platelet abnormalities can result in health complications or even death for pregnant women. Thrombocytopenia, defined as platelet levels below 150,000/ μ l, is a common abnormality in Preeclampsia, whereas thrombocytosis is rarely observed but not impossible.

This study found that most of the 52 pregnant women with Preeclampsia had normal platelet levels, while only 10 had abnormal levels. This suggests that both normal and abnormal platelet levels can occur in pregnant women with preeclampsia and severe preeclampsia. Thrombocytopenia is often a sign of HELLP Syndrome, which is a critical condition and a severe complication of Preeclampsia. However, early detection and proper treatment can help manage Preeclampsia and its complications.

Severe Preeclampsia is a severe form of Preeclampsia characterized by symptoms such as blood pressure 160/110 mmHg or higher, proteinuria of 5g/24 hours, reduced urine production of less than 400 cc/24 hours, pulmonary edema, cyanosis, and subjective shortness of breath (headache, visual disturbances, pain in the upper abdominal area).

Although the exact causes of Preeclampsia are not well understood, several factors such as primigravida, the role of Prostacyclin and Thromboxane, genetic factors, obesity, malnutrition, and impaired blood flow to the placenta are considered predisposing factors. Further research is needed to investigate the causes of Preeclampsia and its association with other laboratory results.

CONCLUSION

Based on the study's findings, it can be concluded that the majority of pregnant women with preeclampsia in the maternity ward of RSUD dr. R. Koesma Tuban had severe preeclampsia, and most of them had normal platelet levels.

SUGGESTIONS

Further research is recommended to investigate urine analysis results in pregnant women with preeclampsia to supplement the findings of this study.

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SPSS Data Analysis Result

Crosstab

Count

		trombosit		Total
		normal	tidak	
preklamsi	pe	13	0	13
	Severe	32	7	39
	Preeclampsia			
Total		45	7	52

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2,696 ^a	1	,101		
Continuity Correction ^b	1,376	1	,241		
Likelihood Ratio	4,379	1	,036		
Fisher's Exact Test				,171	,115
Linear-by-Linear Association	2,644	1	,104		
N of Valid Cases	52				

a. 1 cells (25,0%) have expected count less than 5. The minimum expected count is 1,75.

b. Computed only for a 2x2 table