Correlation of Systemic Immune-Inflammation Index (SII) and Platelet Lymphocyte Ratio (PLR) with Anxiety Levels in COVID-19 Patients at H. Adam Malik General Hospital Medan

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ABSTRACT

Objective: This study aims to determine the correlation and association of systemic immune inflammation index (SII) and platelet lymphocyte ratio (PLR) with anxiety levels in COVID-19 patients at Haji Adam Malik General Hospital Medan. **Method**: This study is a analytical-retrospective study with cross sectional design. The subjects of this study were 50 COVID-19 patients who were treated at HAM General Hospital. **Result**: Of the 50 study subjects, 28 (56%) were in the severe anxiety category, 15(30%) were in the moderate anxiety category, and 7(14%) were in the mild anxiety category. Theaverage SII index of the overall subject was 29995.11 ± 4531.37 while the average overall PLR ratio was 309.75 ±253.85. Spearman correlation test showed the result of the correlation coefficient R = 0.518 with the value P = 0.0001 for the correlation of SII indexand anxiety level, while for PLR ratio, the result of the correlation coefficient was R = 0.436 with the value P = 0.002. Logistic regression analysis showed the combination of SIIindex > 410 and PLR > 140 in COVID-19 sufferers increase the risk of severe anxiety by9,754 times (P = 0.37; 95% CI 1,152 – 82,620) compared to patients without COVID-19. **Conclusion**: There is a linear relationship between the Systemic Inflammatory Index (SII) and platelet lymphocyte ratio (PLR) with a BAI score that indicates anxiety levels.

Keywords : Systemic Inflammatory Index, Platelet Lymphocyte Ratio, COVID-19, Anxiety

INTRODUCTION

Coronavirus disease (COVID-19) is a disease caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) virus that affects all aspects throughout the world, causing anxiety in the wider community.[1] Anxiety is an emotional state in the form of physiological responses that arise in anticipation of danger caused by unconscious intra-psychic conflicts. The anxiety that occurs in COVID-19 patients more or less affects the healing process of the disease itself. Anxiety itself can also be a physiological response in the form of an increased heart rate, changes in respiratory rate, sweating, shaking, weakness, and fatigue. Meanwhile, in COVID-19, there is an increase in pro-inflammatory factors as well as anxiety, so the higher the level of anxiety, the more difficult it will be for the infection to be treated and cured.[2]

According to data from the World Health Organization (WHO), as of February 15, 2021, there were 108,579,352 confirmed cases of COVID-19 and 2,396,408 deaths worldwide. COVID-19 in Indonesia as of February 16, 2021, there were 1,233,959 positive cases, 1,039,674 patients recovered and 33,596 people died. Post COVID-19 patients also show a high prevalence of psychiatric conditions, such as: mood disorders, anxiety , Post Traumatic Stress Disorder (PTSD), and insomnia. In the acute stage it has general characteristics of confusion and delirium.[3] Based on the study of Troyer et al (2020) post-COVID-19 patients were clinically diagnosed with PTSD (54.5%), depression (39%), and pain disorder (36.4%), panic disorder (32.5%) and OCD (15.6%) from month 31 to 50 post COVID-19.[4]

Beck Anxiety Inventory (BAI) function was used to assess anxiety symptoms which consisted of 21 points and 2 factors, namely somatic symptoms and effective cognitive symptoms. The BAI questionnaire consists of 21 statements regarding anxiety with a scale of 0-3.[5,6] BAI has the best consistency and the strongest test correlation (r= 0.67). Based on research by Sitorus (2016), found a significant relationship between age, psychosocial stressors and comorbidities with anxiety levels.[7] According to Nomura (2021), the COVID-19 pandemic affects anxiety levels in pregnant women based on the BAI score.[8] Based on Zhao (2020), there is a significant relationship between age, level of education, marital status, location of residence, work, and quarantine with anxiety levels in COVID-19.[9] However, this research has never been done before in the field, especially at H. Adam Malik Hospital Medan. Based on this, researchers are interested in conducting research on the correlation of systemic immune- inflammation index (SII) and

Platelet Lymphocyte Ratio (PLR) with anxiety levels in COVID-19 patients.

SII is a marker of general immune response to various stress stimuli. When inflammation occurs, neutrophil precursors, such as myelocytes and promyelocytes, are released. An increase in the number of neutrophils and platelets is considered a response to systemic inflammation.[10,11] Based on Usul (2020), the accuracy (AUC value) in diagnosing COVID-19 is 0.76 with SII (cut-off value ≤479.1) and 0.739 with NLR (cut-off value ≤1.8). SII (74.9%) was more sensitive than NLR (59.5%) in predicting COVID-19 patients.[11] SII was proposed as a prognostic indicator in the follow-up of septic patients. SII is preferred over NLR because it has a fairly good predictive ability according to ROC analysis. The SII value can be calculated more easily and quickly based on routine blood tests so that it can be easier, faster, and more efficient to be applied in clinics and hospitals and can save costs.[12]

Biomarkers that can represent inflammation and other immune status and are potential predictors for the prognosis of COVID-19 patients can be used Platelet lymphocyte ratio (PLR). PLR is also a marker of inflammation that is new, affordable, and ready for clinical application. PLR is often used in cardiovascular disease, as well as in autoimmune diseases, as a predictor of inflammation and mortality.[13] According to Yang et al (2020), Count white blood cell types, NLR, and PLR. In this study, the accuracy (AUC) of the NLR was 0.815 while the PLR was 0.784. The sensitivity and specificity of the NLR with a cut-off of ≤3.3 were 63.6% and 88% while the PLR with a cut-off of ≤180 had a sensitivity of 44% and a specificity of 77%, respectively.[14] According to Sun et al (2020), PLR with a cut-off of ≤226.67 has an AUC of 0.746 with a sensitivity of 59.26% and a specificity of 80.9%.[15] According to Kartal et al (2017), PLR is a good candidate marker in determining the severity and mortality of COVID-19. In addition, PLR is very sensitive to the immune response and can be easily applied to areas with limited resources and is also affordable in terms of price.[16]

This research is the first time to be conducted in North Sumatra, especially at H. Adam Malik Hospital. Based on this background, the researchers were interested in conducting a study entitled "Correlation of Systemic immune inflammation index (SII) and Platelet Lymphocyte Ratio (PLR) with anxiety levels in COVID-19 patients at H. Adam Malik Hospital Medan".

METHOD

This study is a retrospective analytic study with a cross-sectional design to determine the correlation between systemic immune-inflammationindex (SII) and platelet lymphocyte ratio (PLR) with anxiety levels in COVID-19 patients. The study was conducted at Department of Internal Medicine, Faculty of Medicine, Universitas Sumatera Utara / Haji Adam Malik General Hospital Medan. The subjects of this study were 50 COVID-19 patients who were treated at HAM Hospital. The study used medical records as an instrument, where basic characteristic data of the patient along with laboratory data such as platelet counts, neutrophils, leukocytes, lymphocytes, and degrees of anxiety that was measured by the Beck anxiety inventory (BAI) questionnaire, were collected. The SII index was calculated by the equation: neutrophils × platelets/lymphocytes, while the PLR ratio is calculated employing a comparison of absolute platelet values and absolute values of lymphocytes. The correlation between the SII index, PLR ratio, and BAI score was analyzed using the Spearman Rho test to determine the relationship coefficient. Logistic regression tests were also conducted to find out the factors that had the biggest impact in causing severe anxiety in the study subjects.

The inclusion criteria in this study were patients aged ≥ 18 years and < 60 years who had confirmed COVID-19, were able to communicate, were willing to participate in the study and signed an informed consent, and complete data. The exclusion criteria in this study were severe chronic comorbid diseases (heart failure, psychiatric disorders, kidney failure, and malignancy), severe or critical COVID-19 who were unable to communicate. The data obtained will be presented in the form of tables and graphs. Qualitative data will be analyzed using the size of the mode that is displayed in the form of proportions. Meanwhile, quantitative data will be analyzed using the statistical measures of the mean, median, and standard deviation. To see the differences in the variables will be used cross tabulation. To see the relationship between 2 ratio scale variables, bivariate analysis was used with the distribution normality test: the Saphiro Wilk or Kolmogorov-Smirnov statistical test. If the data is normally distributed, then the Pearson statistical test is used. Meanwhile, if the data is not normally distributed, then the Spearman statistical test is used.

RESULT

Characterictics of Research Subject

This study was followed by 50 subjects that have met the inclusion criteria and exclusion criteria. The description of the characteristics of this research subjects can be seen in Table 1

A total of 24 (48%) research subjects were male, while the remaining 26 (52%) were female. The mean age of all study subjects was 42.1 ± 11.11 years, with a median value of 42 years, where the lowest age was 20 years and the oldest age was 58 years. There were 26 (52%) research subjects with a senior high school education level, 2 (4%) at D3 level, and 22 (44%) at S1 level. A total of 43 (86%) research subjects were married, while the remaining 7 (14%) were unmarried. All research subjects have jobs not as medical personnel.

The average BAI score of all research subjects was 26.74 ± 8.63 with a median value BAI score of 27, where the lowest BAI score was 10 and the highest BAI score was 46. A total of 7 (14%) subjects were in the mild anxiety category, 15 (30%) were in the category of moderate anxiety, and 28 (56%) subjects were in the category of severe anxiety. None of the subjects were in the minimal anxiety category. The mean SII index of all research subjects was 29995.11 ± 4531.37 with the median value SII index of 1542.50, where the lowest SII index was 43.17 and the highest SII index was 28478. A total of 2 (4%) subjects were in the category SII index < 410 and 48 (96%) are in the SII index category ≥ 410. The average PLR ratio of all research subjects is 309.75 ± 253.85 with the

median value PLR ratio is 226.74, where the lowest PLR ratio is 11, 92 and the highest PLR Ratio is 1216.52. A total of 15 (30%) subjects were in the PLR ratio < 144 category and 35 (70%) were in the PLR ratio ≥ 144 category.

In the group of research subjects with mild anxiety, the mean SII index was 962.36 ± 402.44 with a median value of 1003.18 (382.77 – 5287.75). In the group of research subjects with moderate anxiety, the mean SII index was found to be 1881.77 ± 1696.51 with a median value of 1198.51 (43.17 – 5287.75). In the group of research subjects with severe anxiety, the mean SII index was 4099.73 ± 5719.31 with a median value of 2306.51 (713.83 – 28478). In the group of research subjects with mild anxiety, the average PLR ratio was 134.14 ± 77.89 with a median value of 141.63 (36.78–236.73). In the group of research subjects with moderate anxiety, the average PLR ratio was 238.92 ± 194.91 with a median value of 142.50 (11.92 – 710.70). In the group of research subjects with severe anxiety, the average PLR ratio was 391.60 ± 279.60 with a median value of 300.77 (55.57 – 1216.52). (Table 2)

Spearman Correlation Analysis

In statistical analysis using Spearman Rho test to see the correlation between the SII index, PLR ratio with anxiety levels, the results showed a significant relationship.

Spearman correlation test shows the correlation coefficient R = 0.518 with a P value = 0.0001 in the SII index analysis and anxiety levels. The R coefficient, which is above 0.5, indicates a strong relationship between the SII index and the level of anxiety in the research subjects. A positive coefficient value indicates a linear relationship between the two things. (Table 3)

Spearman correlation test shows the correlation coefficient R = 0.436 with a P value = 0.002 in the analysis of the PLR ratio and anxiety level. Although the R coefficient is below 0.5 the value of this coefficient is still in the range of 0.26-0.5 so it still shows a fairly strong relationship between the PLR ratio and the level of anxiety in the research subjects. A positive coefficient value indicates a linear relationship between the two things. (Table 4)

Logistics Regression Analysis

From the logistic regression analysis, it was found that the only factor that played a role as a risk factor for the subjects of this study, all of whom were COVID-19 patients to suffer from severe category anxiety, was the combination of SII > 410 and PLR > 140. Subjects with these risk factors had a risk of 9.754 times greater to experience severe anxiety (P = 0.037; 95% CI 1.152 – 82.620). (Table 5)

ROC Curve Analysis

In this study, it was found that both SII and PLR had a good ability to predict severe anxiety. Through ROC analysis, it was found that the PLR ratio had an area under the curve (AUC) value of 0.744 with a P value = 0.003 (95% CI 0.603-0.884). For the SII index, it was found that this index has an area under the curve (AUC) value of 0.739 with a P value = 0.004 (95% CI 0.597-0.881). The PLR ratio threshold value of 238.05 has a sensitivity and specificity of 64.3% and 72.7%, respectively. The SII index threshold value of 1514.49 has a sensitivity and specificity of 75% and 72.7%, respectively. (Figure 1)

DISCUSSION

Characterictics of Research Subject

In this study, there was no significant difference between the male and female sex ratios of the research subjects. This is quite different from existing studies. A study by Hammarberg, et al, in 2020 showed that women have a greater risk of anxiety and depression when exposed to COVID-19. In this study, it was found that 21.8% women out of a total of 13,762 subjects (95% CI 21.0 to 22.6) compared to 14.2% men from the total subjects experienced anxiety (95% CI 13.0 to 15.4), p<0.001).[17] Another study by Anindyajati, et al, in 2021 also showed that female sex had a 1.86 times higher risk (P = 0.001) than men for experiencing anxiety when diagnosed with COVID-19.[18]

In this study, the age range obtained ranged from 20 to 58 years. This is in line with previous studies, which showed that COVID-19 can be suffered by all age groups. However, in these studies, younger ages are said to be more at risk for experiencing anxiety when exposed to COVID-19.[18] This phenomenon can be explained by the illustration that young adults, in the majority, have to adapt to additional changes in their daily routine, including the educational or work environment when they are sick.[19] Another study also showed that mean scores on the PSS, GAD-7, and PHQ-9 scales, a scoring system also commonly used to assess anxiety, were highest among those aged 25 years and lowest among those aged > 60 years.[20]

The research subjects in this study have a balanced comparison between subjects who have the last education at the high school level with the last education at the university level, either D3 or S1. Previous studies showed that lower levels of education were significantly associated with anxiety, when analyzed in the study at the bivariate level, but were not found to be significantly associated at the multivariate level.[18]

More than half of the subjects in this study were married. This is quite different from previous studies which stated that anxiety was more likely to occur in unmarried patients. A study by Nkire, et al, 2021 showed that mean scores on PSS, GAD-7, and PHQ-9 were highest among those who were single and lowest among those who were widowed. Overall, the mean score on the PHQ-9 was higher in the group who identified as separated from a partner or divorced when compared to the group identified as having a partner, including the married or living together category.[21]

In this study, there were no subjects with minimal anxiety category. More than half of the subjects, namely 28 subjects (56%) were in the category of severe anxiety. This is in line with previous studies, which have shown that the likelihood of experiencing COVID-19-induced anxiety is very high. One study showed that out of a total of 307 research subjects, the prevalence of anxiety and depressive symptoms was 18.6% and 13.4%, respectively. Poor sleep quality and having two physical symptoms at the time of treatment were independent risk factors for anxiety symptoms. Female gender, having a

family member with confirmed COVID-19, and having two physical symptoms at the time of treatment were independent risk factors for depressive symptoms.[22] A meta-analysis involving 5153 patients in 31 studies, showed the aggregated prevalence of depression was 45% (95% CI: 37-54%, I2 = 96%), the aggregated prevalence of anxiety was 47% (95% CI: 37 -57%, I2 = 97%), and the cumulative prevalence of sleep disturbances was 34% (95% CI: 19-50%, I2 = 98%).[23]

This is also supported by a meta-analysis showing that from the general population during this pandemic, the prevalence of stress in 5 studies with a total sample size of 9074 was obtained as 29.6% (95% CI: 24.3-35.4), prevalence anxiety in 17 studies with a sample size of 63,439 as 31.9% (95% CI: 27.5–36.7), and prevalence of depression in 14 studies with a sample size of 44,531 persons as 33.7% (95% CI: 27.5–40.6).[24] According to Nomura (2021), the COVID-19 pandemic affects the level of anxiety in pregnant women based on the BAI score. Of the 1,662 mothers with end-trimester pregnancy, 13.9% showed moderate anxiety and 9.6% severe anxiety.[8] Contrary to previous studies, another study showed no significant difference in GAD-7 and PHQ-9 scores between the COVID-19 positive and COVID-19 negative populations.[25]

In this study, 48 subjects had an SII index value greater than 410. This indicates an increased inflammatory condition in COVID-19 patients. Previous studies have shown that increased levels of SII can be used as a risk factor for survival with OR = 0.18, CI = (0.05, 0.66).[10] The SII value was proven to be a factor influencing the survival of COVID-19 patients (HR = 1.0001; 95% CI, 1.0000–1.0001, p = 0.029, Cox multivariate analysis).[26] The study by Turan, et al, 2021 showed that the SII threshold value > 883.08 could be used as a benchmark as a marker of severe disease (AUC = 0.781, 95% CI 0.677– 0.864, P = <0.001, 75% sensitivity-specificity), and threshold >1320 ,12 can be used as a benchmark for ICU needs (AUC = 0.745, 95% CI 0.639–0.834, p = 0.001, sensitivity = 69.23, specificity = 78.87).[27]

In this study, it was found that 33 subjects had a PLR ratio greater than 144. The PLR ratio is also a marker of inflammation that has been widely studied and is closely related to COVID-19. Based on the research of Kartal et al (2017), PLR can be a good candidate marker in determining the severity and mortality of COVID-19, this is because PLR is very sensitive to the immune response and can be easily applied and the price is not expensive.[16] This is also supported by the research of Mazza et al (2018), which states that the calculation of PLR is very easy because it can be calculated from the white blood cell count, is inexpensive, and is suitable for showing inflammatory reactions.[28] Based on the research of Simadibrata et al (2020), COVID-19 patients with severe symptoms had significantly higher PLR values than those with mild or moderate symptoms (P value = 0.03).[13] This is contrary to the study of Qu et al (2020), higher PLR values were found in patients with mild-moderate symptoms when compared to severe symptoms.

Spearman Correlation Analysis

In this study, the mean SII index and its median value were higher along with the severity of anxiety based on the classification of the BAI score. The mean PLR ratio and its median value are getting higher along with the severity of anxiety based on the BAI score classification. Spearman correlation test shows the correlation coefficient R = 0.518 with a P value = 0.0001 in the SII index analysis and anxiety levels. The R coefficient which is above 0.5 indicates a strong relationship between the SII index and the level of anxiety in the research subjects. A positive coefficient value indicates a linear relationship between the two things. For the PLR ratio, it was found that the correlation coefficient was R = 0.436 with a P value = 0.002 in the analysis of the PLR ratio and the level of anxiety. Although the R coefficient is below 0.5 the value of this coefficient is still in the range of 0.26-0.5 so it still shows a fairly strong relationship between the PLR ratio and the level of anxiety in the research subjects. A positive coefficient value indicates a linear relationship between the two things.

This is in line with previous findings showing there is a strong relationship between inflammation and anxiety. In the study of Zhou et al (2020), inflammation was associated with the etiopathogenesis of major depressive disorder (MDD) through activation of the hypothalamic-pituitary-adrenal (HPA) regulation, the neurotransmitter system, and evidence of the release of proinflammatory cytokines.[29] According to Shafiee et al (2017) described high depression scores associated with inflammatory status characterized by white blood cells.[30] A study by Vogelzangs, et al, 2013 showed elevated CRP levels were found in men, but not women, with anxiety disorders when compared with controls (1.18 (se= 1.05) vs. 0.98 (se= 1.07) mg l-1, P = 0.04, Cohen's d = 0.18). No association was found with IL-6 or TNF-α. Among people with anxiety disorders, those with social phobia, particularly women, had lower levels of CRP and IL-6, whereas the highest levels of CRP were found in those with an older age of onset of anxiety disorder.[31]

One study examining the association between Generalized Anxiety Disorder (GAD) and inflammation showed that elevated levels of C reactive protein (CRP), interferon-γ and tumor necrosis factor-α were reported in patients with GAD compared with controls in two or more studies. A further ten proinflammatory cytokines were reported to be significantly elevated in GAD in at least one study. However, 5 of 14 studies found no difference in levels of at least one cytokine. Only the CRP studies reported sufficient data for a meta-analysis. CRP was significantly higher in persons with GAD compared with controls (Cohen's d = 0.38, 0.06–0.69), comparable to that reported in schizophrenia. Other studies have shown that inflammation can further cause memory impairment along with anxiety disorders and depression. Higher levels of depression and inflammation were linked to poorer memory but better recognition abilities. Higher levels of anxiety were associated with better memory but were not associated with recognition ability. These findings suggest a complex relationship between modifiable health risk factors such as inflammation and memory.[32] Neuroimaging studies have shown that inflammation has consistently been found to

affect the basal ganglia and motor circuits resulting in reduced motivation and motor activity, as well as anxiety-related brain regions including the amygdala, insula and anterior cingulate cortex, which may result from the effects of cytokines on monoamines and glutamate. A similar relationship between inflammation and altered neural circuits has been observed in MDD patients with elevated peripheral inflammatory markers.[33]

Logistics Regression Analysis

In this study, 48 subjects had an SII index value greater than 410. In this study, 33 subjects were found to have a PLR ratio greater than 144. From the logistic regression analysis, it was found that the only factor that played a role as a risk factor was the research subject these all of whom were COVID-19 patients suffering from severe category anxiety, were a combination of SII > 410 and PLR > 140. Subjects with these risk factors had a risk of 9.754 times greater to experience severe anxiety (P = 0.037; 95% CI 1.152 – 82.620). This indicates an increased inflammatory state in COVID-19 patients. Previous studies have shown that increased levels of SII can be used as a risk factor for survival with OR = 0.18, CI = (0.05, 0.66).[10] The SII value was proven to be a factor influencing the survival of COVID-19 patients (HR = 1.0001; 95% CI, 1.0000–1.0001, p = 0.029, Cox multivariate analysis).[26] The study by Turan, et al, 2021 showed that the SII threshold value > 883.08 could be used as a benchmark as a marker of severe disease (AUC = 0.781, 95% CI 0.677–0.864, P = <0.001, 75% sensitivity-specificity), and threshold >1320 ,12 can be used as a benchmark for ICU needs (AUC = 0.745, 95% CI 0.639–0.834, p = 0.001, sensitivity = 69.23, specificity = 78.87).[27]

The PLR ratio is also a marker of inflammation that has been widely studied and is closely associated with COVID-19. Based on the research of Kartal et al (2017), PLR can be a good candidate marker in determining the severity and mortality of COVID-19, this is because PLR is very sensitive to the immune response and can be easily applied and the price is not expensive.[16] This is also supported by the research of Mazza et al (2018), which states that the calculation of PLR is very easy because it can be calculated from the white blood cell count, is inexpensive, and is suitable for showing inflammatory reactions.[28] Based on the research of Simadibrata et al (2020), COVID-19 patients with severe symptoms had significantly higher PLR values than those with mild or moderate symptoms (P value = 0.03).[13] This is contrary to the study of Qu et al (2020), higher PLR values were found in patients with mild-moderate symptoms when compared to severe symptoms.

CONCLUSION

There is a correlation between the Systemic Inflammatory Index (SII) and the platelet lymphocyte ratio (PLR) with the BAI score which indicates the level of anxiety. The value of the SII index and the PLR ratio will increase with the severity of anxiety.

Table 1. Characterictics of the Research Subjects

Variable		Value
Gender	Laki-laki Perempuan	24 (48%) 26 (52%)
Age (years)	Mean Median	42,1 ±11,11 42 (20 – 58)
Education	High school D3 S1	26 (52%) 2 (4%) 22 (44%)
Marital status	Married Unmarried	43 (86%) 7 (14%)
Job	Non-Medical personel	50 (100%)
BAI score	Mean Median	26,74 ±8,63 27 (10 – 46)

Anxiety category	Minimal anxiety Mild anxiety Moderate anxiety Severe anxiety	0 (0%) 7 (14%) 15 (30%) 28 (56%)
SII index	Mean Median <410 ≥410	29995,11 ± 4531,37 1542,50 (43,17 – 28478) 2 (4%) 48 (96%)
PLR ratio	Mean Median <144 ≥144	309,75 ±253,85 226,74 (11,92 – 1216,52) 15 (30%) 35 (70%)

Table 2. The Mean and Median Value of SII Index and PLR Ratio in the Anxiety Category

	Mild anxiety	**Moderate anxiety**	**Severe anxiety**
SII Index			
Mean	962,36 ± 402,44	1881,77 ± 1696, 51	4099,73 ± 5719,31
Median	1003,18 (382,77 – 5287,75)	1198,51 (43,17 – 5287,75)	2306,51 (713,83 – 28478)
PLR Ratio			
Mean	134,14 ± 77,89	238,92 ± 194,91	391,60 ± 279,60
Median	141,63 (36,78 – 236,73)	142,50 (11,92 – 710,70)	300,77 (55,57 – 1216,52)

Table 3. Spearman Correlation Analysis Between SII Index and BAI Score

Correlations

			skor BAI	**SII**
Spearman's rho	Skor BAI	Correlation Coefficient	1.000	.518**
		Sig. (2-tailed)	.	.000
		N	50	50
	SII	Correlation Coefficient	.518**	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4. Spearman Correlation Analysis Between PLR Ratio and BAI Score

Correlations

			PLR	skor BAI
Spearman's rho	PLR	Correlation Coefficient	1.000	.436**
		Sig. (2-tailed)	.	.002
		N	50	50
	skor BAI	Correlation Coefficient	.436**	1.000
		Sig. (2-tailed)	.002	.
		N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

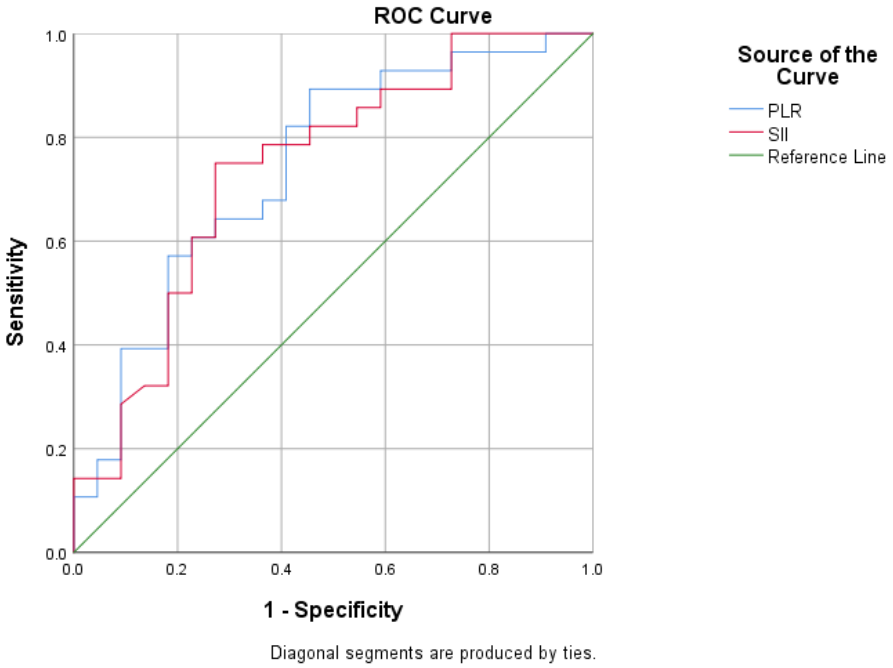
Table 5. Logistics Regression Analysis

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Status (1)	-.507	1.295	.153	1	.695	.602	.048	7.622
	SII410etPLR140 (1)	2.278	1.090	4.366	1	.037	9.754	1.152	82.620
	Usia	-.016	.040	.156	1	.693	.984	.911	1.064
	SII	.000	.000	.475	1	.491	1.000	.999	1.000
	PLR	.000	.002	.043	1	.836	1.000	.995	1.004
	Jenis Kelamin (1)	-.074	.782	.009	1	.925	.929	.201	4.298
	Pendidikan Kat			.624	2	.732			
	Pendidikan Kat (1)	-20.273	28394.857	.000	1	.999	.000	.000	.
	Pendidikan Kat (2)	-.774	.980	.624	1	.430	.461	.068	3.147
	Constant	1.087	1.458	.556	1	.456	2.966		

a. Variable(s) entered on step 1: status, SII410etPLR140, usia, SII, PLR, Jenis Kelamin, PendidikanKat

Figure 1. Analysis of the ROC curve for the SII index and the PLR ratio. Red line = SII, blue line = PLR



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