

The Correlation Value of DAS28 with Anti-CCP Titer on Rheumatoid Arthritis Patients in Cipto Mangunkusumo Hospitalin 2012-2016

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Abstract

Background Rheumatoid Arthritis (RA) is one of the diseases associated with the immune system which causes joint damage and effect to the quality of patient's life. DAS28 CRP value describes RA disease activity. The anti-CCP titer is a very specific examination which provide an overview prognosis of RA patient's illness. The research on the correlation of anti-CCP Titers with DAS28 CRP values has never been done in Indonesia. Therefore, this research aims to determine the correlation between anti-CCP Titer and DAS28 CRP value in RA patient in Cipto Mangunkusumo hospital with DAS28 CRP value in RSCM.

Method The research design is cross-sectional with the sample amounted to 34. anti-CCP and DAS28 CRP were obtained through patient's medical records.

Result The result of this correlationstudy is ($p = 0,582$) and $r = 0,086$.

Conclusion In conclusion, there is no correlation between anti-CCP and DAS28 in Cipto Mangunkusumo hospital.

Keywords: Anti-CCP; DAS28 CRP; Rheumatoid Arthritis

Introduction

Rheumatoid Arthritis (RA) is an autoimmune disease with chronic inflammation both, in large joints or small joints, when RA occurs in small joints, it will spreads symmetrically. The women are more at risk.¹ The ethiology of the disease is still unknown, however it is predicted as combination of two factors are genetic and environmental factors. If RA diagnosis can be established earlier, then the treatment can be done earlier. Therefore the joint damage can be prevented and reduced.¹⁻⁴

The assessment of RA disease activity can be done in several ways, such as *Disease Activity Score 28* or DAS28. The DAS28 assessment was calculated by 28 joints which are in pain and swollen *Visual Analogue Scale* (VAS) and *Erythrocyte Sedimentation Rate* (ESR) or *C-Reactive Protein* (CRP) as inflammatory markers.^{2,4,5} CRP is acute phase proteins which appears after inflammation in alpha globulin form in the serum. CRP level in RA patients is always increase, therefore it can be as marker to assess RA activity and to evaluate treatment.⁴⁻⁷

Anti-CCP or *Anti-Cyclic Citrullinated Peptide* is a RA marker which appears before RA clinical symptoms appear. Anti-CCP is a very specific, it is used to know the condition and the severity of RA, and also help diagnose RA. The examination can also provide an overview of patient prognosis. Anti-CCP positive is related to LED values, high CRP, the total of swollen joints and decreased functional values of joints.⁷⁻¹³

DAS28 CRP describes the activity of RA disease and anti-CCP describes disease progression. Anti-CCP Titer is used for diagnostic but in some researches, it also used to see the disease activity. Currently, examination of DAS28 CRP is often used because it is relatively easier and cheaper than anti-CCP. If the value of DAS28 CRP increases then the anti-CCP Titer also increases, however currently in Indonesia there is no research related to the correlation between increasing the value of DAS28 CRP with an anti-CCP Titer in Rheumatoid Arthritis patients, therefore aim of this study is to verify correlation between the value of DAS28 CRP with anti-CCP Titer.³⁻¹³

Method

This research is analytical descriptive research with cross-sectional method. The research used secondary data which is obtained from medical records of RA patients treated in the department of internal medicine Cipto Mangunkusumo hospital from may 2012 until august 2016 that fulfilled inclusion criteria, is RA patients who fulfilled ACR/ EULAR 2010 criteria with a minimum score ≥ 6 age ≥ 18 years old, there are DAS28 CRP value and anti-CCP titer on medical records. The exclusion criteria is patients who suffer other autoimmune diseases besides RA, diabetes mellitus, allergy, asthma, anemia, chronic kidney disease, cirrhosis, stroke which is clinically assessed and listed on the patient's medical record. DAS28 CRP value and anti-CCP titer are processed to know the correlation of DAS28 CRP value with anti-CCP titer. This research used data from medical records of RA patients in Cipto Mangunkusumo hospital through central medical record unit and kencana medical record unit, from may 2012 until august 2016. The data used in this research are 43 data DAS 28 CRP and anti-CCP value are analyzed by using SPSS.

Result

In table 1. there is sample demographic data. The frequency of female gender: 97,7%, and the male gender: 2,3%. The average age of the respondents is 48.6 years old with standard deviation 13.22. The median value is 50 years old with minimum age 19 years old and maximum age 81 years old.

The average of DAS28 CRP value is 3.508 mg/L with standard deviation 1,196 mg/L. Median value is 3,25 mg/L with minimum value 1.77 mg/L and maximum value 6,96 mg/L. From the sample the median of anti-CCP titer is 4.6 RU/mL with minimum value 1.18 RU/mL and maximum value 800 RU/mL.

Table 1. Sample Demographic Data

Characteristic	Result (N=43)
Gender, frequency (%)	
Female	42 (97.7%)
Male	1 (2.3%)
Age, (years)	48,6 (13.224)*
Minimum - Maximum	19–81
Anti CCP,	4,6 (1.18 – 800)**
DAS28 CRP,	3.508 (1.196)*
Minimum - Maximum	1,770 – 6,960

*: normally distributed data, data presented in mean (\pm SD)

**:.not normally distributed data, data presented in median (range)

Table 2. Correlation DAS 28 CRP value and Anti CCP

	Anti-CCP titer	
	r	p
DAS28 CRP value	r=0,086	p=0,582

The normality test results from the sample found that the anti-CCP titer is not normal, while DAS28 CRP value is normal. Thus, the correlation test used in this research is Pearson test. In this research, the p value obtained is 0.582 ($>0,05$) which is statistically means no significant correlation between DAS 28 Value and anti-CCP titer. The r value obtained is 0.086, which means the correlation strength is statistically very weak. The correlation direction from this research is positive, it means if the anti-CCP titer is high, DAS28 CRP value is high too.

Discussion

Based on the distribution by gender, female is more than male the average of RA patients was 48.6 years old The result is consistent with previous research conducted by Symmons et al. which obtained ratio between female and male patient is 3.6:1.5. The research conducted by Symmons et al found that age of RA patients is over than 40 years old. Based on the epidemiology data females have 3–4 times risk more than males. ^{1,2}

In this research found that there is no correlation between DAS28 CRP with anti-CCP titer, similar to previous research conducted by Glasnovic *et al*.⁷ In this study, there are several samples of anti-CCP titer which are higher than others, it

causes the distribution of anti-CCP titer became abnormal. Then it may effect to the final result of this study. DAS28 CRP score can change rapidly according to the disease's activity, so does the Anti-CCP score. Although it takes a little more time for anti-CCP score to change. Thus, a Cohort Study needs to be done to find the correlation between DAS28 CRP and anti-CCP.²¹⁻²⁴

Conclusion

Based on the results we found that the average DAS28 CRP value of RA patients in Cipto Mangunkusumo hospital is 3508 mg/L and the median anti-CCP titer of RA patient in Cipto Mangunkusumo hospital is 4.6 RU/ML. We obtained that there is no correlation between DAS28 CRP value with anti-CCP titer in rheumatoid arthritis patients in Cipto Mangunkusumo hospital in 2012-2016.

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