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EFFECT OF TAQ1 VITAMIN D RECEPTOR GENE POLYMORPHISM ON THE INCIDENCE OF PULMONARY TUBERCULOSIS

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INTRODUCTION

Tuberculosis (TB) still world's and Indonesia problem. Approximately one third of the world population ever infected with *Mycobacterium tuberculosis* (Mtb), but only about 10% become pulmonary TB. Presumably there is influence of individual genetic factors to TB infection. Resistance to TB influenced by genetic factors that control immunity. One of gene suspected has a role in immunity against TB is vitamin D receptor gene (VDR gene). Decreasing of this gene function influence to decrease of cellular immunity to Mtb¹⁻³.

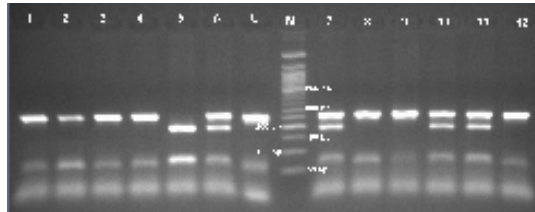
METHOD

The design of study was observational case control study. Pulmonary tuberculosis patients as case group were matched with healthy person group with tuberculin positive test as control group. The aims of the study was to determine the effect of Taq1 VDR gene polymorphism on incidence of pulmonary TB in South

Sumatera Indonesia. Polymorphism of *TaqI* was detected by PCR-RFLP using *TaqI* enzyme⁴.

RESULT AND DISCUSSION

We recruited 40 cases and 40 controls subject. The genotype distribution of *TaqI* site TT : Tt : tt were 35% : 30% and 35% in cases group, and 42,5% : 22,5% and 35% in control group respectively. Value of p 0,007, Odds Ratio 0,1 in confidence interval 95%. Allele frequency distribution was 50% wild type (T) and 50% t allele (mutant) in case group, 57,5% allele T and 42,5% allele t in control group (p 0,009, Odds Ratio 0,8 in confidence interval 95%). The results were indicated that *TaqI* VDR gene polymorphisms has protective effect to incidence of pulmonary TB⁵.



Picture 1. PCR-RFLP result digested by *TaqI* enzyme of VDR gene. M is marker. Undigested 300 bp was homozygote wild type, digested 205 bp, 95 bp was homozygote mutant and 3 bands 300 bp, 205 bp, 95 bp was heterozygote.

CONCLUSION

TaqI VDR gene polymorphisms has protective effect to incidence of pulmonary TB in South Sumatera Indonesia.

REFERENCES

1. Issar Smith, Carl Nathan, and Hannah H Peavy, 2002. Progress and New Directions in Genetics of Tuberculosis An NHLBI Working Group Report. *Am J Respir Crit Care Med.* Vol 172. pp 1491–1496.
2. John H. White. Vitamin D Signaling, Infectious Diseases, and Regulation of Innate Immunity. *Infect Immun.* 2008, 76: 3837–3843
3. Bellamy R, Ruwende C, Corrah T et al. Tuberculosis and Chronic Hepatitis B Virus Infection in Africans and Variation in the Vitamin D Receptor Gene. *J Infect Dis* 1999;179:721–4
4. Bornman L, Campbell SJ, Fielding K et al. Vitamin D Receptor Polymorphisms and Susceptibility to Tuberculosis in West Africa: A Case-Control and Family Study. *J. Infect Dis* 2004; 190:1631–41
5. Roth DE, Soto G, Arenas F et al. Association between Vitamin D Receptor Gene Polymorphisms and Response to Treatment of Pulmonary Tuberculosis. *J. Infect. Dis* 2004; 190:920–7.