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## Association of BMI and waist to hip ratio with the ratio of LDL to HDL and total cholesterol to HDL in urban adolescents without cardiovascular risk factor in Jambi city, Indonesia

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Incidence of cardiovascular disease in adulthood could not be separated from the continuous interaction from infancy through adolescence. Some risk factors for cardiovascular disease occurred since his teens. High level of low-density lipoprotein and cholesterol is often indicative of increased risk for cardiovascular disease. The ratio of LDL to HDL and total cholesterol to HDL can be used to reveal the risk of it. This research is to estimate the influence of 12 potential factors and to find association of BMI and waist to hip ratio with the level of LDL to HDL and total cholesterol to HDL ratio. A correlation ratio (ETA) design study using primary data which are gathered prospectively among random adolescents in Jambi whose BMI is underweight, normal, overweight and obese that could participate on the day of the survey. Data on 12 potential factors including daily intake, physical activity, and family history were collected three days. We administered a questionnaire and measured BMI and waist to hip ratio to assess statistical relation with the level of LDL to HDL and total cholesterol to HDL ratio. Category of LDL to HDL and total cholesterol to HDL ratio was stratified from high risk and low risk. Examinations of lipid profiles were done at the clinical laboratory of Abdul Manap Regional Public Hospital in Jambi. Duration of research was about 3 months. The study included 50 people with age span of 16 to 20 years old with all of them had low level of LDL to HDL and total cholesterol to HDL ratio. Most of samples were underweight (42%) resulting low risk for cardiovascular disease as well as normal (24%), overweight (26%) and obese (8%) people. BMI was likely to influence the low level of LDL to HDL ( $\eta^2=0.705$ ) and total cholesterol to HDL ratio ( $\eta^2=0.765$ ), confirmed statistically significant. 94% samples with low risk category of waist to hip ratio were likely to have low risk for cardiovascular disease. Waist to hip ratio influenced the low level of LDL to HDL ( $\eta^2=0.003$ ) and total cholesterol to HDL ratio ( $\eta^2=0.021$ ). Other factors that associated with the level of LDL to HDL and total cholesterol to HDL ratio were frequency of daily intake including fruit, vegetables, and snacking consumption, physical activity, and family history of uncommunicable disease. The strongest association was a relation of the level of LDL to HDL and total cholesterol to HDL ratio with Body Mass Index. By knowing the risk factors, cardiovascular disease can be prevented at earlier age.

### Biography

Byanicha Aurora has completed his Medical studies in 2012 and graduated from Sriwijaya University, South Sumatera, Indonesia. He has worked as an Internship Doctor in 2013-2014 at one of the regional hospitals and community health centers in Jambi City. After finishing his internship program, he started working as a General Practitioner in rural area of Indonesia that called PTT doctor for almost three years, and currently, he is a government employee working in the same area.

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