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ASSOCIATION OF LIPID RATIO AND DYSGLYCEMIA AMONG URBAN POPULATION IN MAKASSAR, SOUTH OF SULAWESI

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Fergie M G Runtu,[1] Fabiola M S Adam,[2] John M F Adam,[2] Jordy Sitorus,[3] Makbul Aman,[2] Husaini Umar[2]
[1]*Universitas Indonesia, Jakarta, Indonesia*
[2]*Universitas Hasanuddin, Makassar, Indonesia*
[3]*Universitas Sam Ratulangi, Manado, Indonesia*

INTRODUCTION
The global prevalence of dysglycemia, encompassing prediabetes and diabetes mellitus has increased worldwide. Dyslipidemia is recognized to be an implication of insulin resistance that is recognized as a key factor in the development of type 2 diabetes mellitus. Recently, lipid ratios have emerged as a predictor of dysglycemia and have been proposed as a screening tool for assessing insulin resistance. This study aimed to evaluate the relationship between different lipid ratios and the occurrence of prediabetes and diabetes mellitus.

METHODOLOGY
Subjects were men and women who participated in the Lipid and Diabetes Study in Makassar, South of Sulawesi, Indonesia, ages 18-70 years old who met the inclusion criteria. Data from anthropometric and biochemical laboratories were measured. Cholesterol total/HDL ratio and LDL/HDL ratio >5 were considered high risk. TG/HDL ratio was divided into quartiles and the 4th quartile was considered as high risk. The association of lipid ratio risk status with dysglycemia was determined using Chi-square analysis. Binomial regression analysis was performed to determine the measure of association between lipid ratio status and dysglycemia outcome using odds ratio.

RESULTS
The study included 2737 subjects consisting of 741 (27.1%) males and 1996 (72.9%) females with a mean age of 45.07 ± 12.15 years. There was a significant association across all high-risk lipid ratios with dysglycemia except for the LDL/HDL ratio in subjects with diabetes compared to those with prediabetes. Unadjusted odds of diabetes and prediabetes compared to normoglycemia were increased significantly in those with elevated lipid ratio of TG/HDL with OR 2.877 (95% CI: 2.028,4.081, p = 0.000), OR 1.506 (95% CI: 1.141-1.988, p = 0.004), respectively. Similarly, an increased total-cholesterol/HDL ratio was associated with a higher risk of diabetes and prediabetes compared to normoglycemia, with ORs of 2.699 (95% CI: 1.901, 3.832, p = 0.000) and 1.634 (95% CI: 1.243, 2.149, p = 0.000), respectively. While a high LDL/HDL ratio is associated with a 2.784 (95% CI: 1.619-4.787, p = 0.000) increased risk of diabetes and 1.685 (95% CI:1.038-2.734, p = 0.035) risk in prediabetes. When adjusted for age, smoking status, hypertension, central obesity, and BMI, all high-risk lipid ratios are significantly associated with an elevated risk of diabetes.

CONCLUSION
Elevated lipid ratios are significantly associated with an increased occurrence of dysglycemia. Moreover, the high-risk lipid ratio of TG/HDL and total cholesterol/HDL are linked to an enhanced risk of diabetes compared to prediabetes. Hence, these indices are potential screening tools for dysglycemia.

KEYWORDS
dysglycemia, insulin resistance, lipid ratio