

# Association between Socio-Demography, Onset of Diabetes and Co-Morbidities on Risk for Complication of Diabetes: Result from National Diabetic Registry

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## ABSTRACT

**Introduction:** Diabetes mellitus is a group of metabolic disorders of multiple aetiology. This disease is resulted from defects in insulin secretion, insulin action, or both. The effects of diabetes mellitus include long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels. Polyuria, polydipsia, weight loss, sometimes with polyphagia, blurred vision, impairment of growth, and susceptibility to certain infections are among the symptoms of this disorder. The most severe symptoms include atherosclerosis, ketoacidosis or a non-ketotic hyperosmolar state. **Objective:** To determine the prognostic factors of having any complications from diabetes mellitus and the association between co-morbidities and risk of having any complications from diabetes mellitus and to determine time to event (survival) for all complications stated in the NDR. **Material and Methods:** Secondary data from the population-based Malaysian National Diabetic Registry (NDR), which includes all people who received care was retrieved. Data is divided into few domains namely sociodemographic, clinical characteristic, laboratory findings (HbA1C) and others blood profiles, treatments history and diabetes complications. All patients receiving diabetes care at 963 participating primary health care clinics are required to be registered into the NDR and the status of patients is regularly updated. **Results:** Older age, male are more likely to have the hazard or risk to have the complication. Malay have 27% higher hazard to have complication compared to Chinese. For those who are smoking also have 11% higher hazard to have complication. Among all factors, comorbidities contribute the most, where the patient will have at least 50% or higher hazard to have any of the complications. **Conclusion:** Age, gender, race, smoking status, duration of diabetes and other co-morbidities remains the prognostic factors of having any complications to the patients for patients with Diabetes Mellitus.

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## Atherogenic Index of Plasma (AIP): understanding its relationship with cardiovascular disease risk factor

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## ABSTRACT

**Introduction:** Understanding the risk factors of cardiovascular disease (CVD) will help in the prevention and reduction of disease burden. Among the risk factors, Atherogenic Index of Plasma (AIP) was found to be a strong marker in predicting CVD. The purpose of this study was to determine the relationship between AIP, nutritional status and other blood profiles. **Methods:** This cross-sectional study was done among 349 staff of a public university in Sarawak. All respondents who fulfilled the inclusion criteria were invited to participate. Data was carried out using questionnaire, blood taking, anthropometric and blood pressure measurement. Data was analyzed using SPSS version 20. **Results:** A total of 349 respondents participated with majority females (66.8%), aged  $38.5 \pm 7.82$  years. Almost 80% of the respondents were overweight and obese, 87% with high and very high body fat percentage, and 46.8% with abnormal visceral fat. For AIP category, 8.9% were found to be in intermediate risk and 16.4% were in high risk of CVD. More than 30% of the respondents were in pre-hypertension and 20.1% were hypertension. Blood profile indicated 20.7% of the respondents have elevated blood glucose, 15.5% elevated total cholesterol, 16.1% elevated low density lipoprotein (LDL), 10.6% elevated triglyceride, and 38.5% have elevated high density lipoprotein (HDL). AIP was significant correlated with body mass index ( $r=0.25$ ,  $p<0.001$ ), visceral fat ( $r=0.37$ ,  $p<0.001$ ), total cholesterol ( $r=0.22$ ,  $p<0.001$ ), LDL ( $r=0.24$ ,  $p<0.001$ ), HDL ( $r=-0.72$ ,  $p<0.001$ ), triglyceride ( $r=0.84$ ,  $p<0.001$ ), blood glucose ( $r=0.32$ ,  $p<0.001$ ), systolic blood pressure ( $r=0.22$ ,  $p<0.001$ ), and diastolic blood pressure ( $r=0.28$ ,  $p<0.001$ ). **Discussion:** The findings showed that the studied population was found to have high risk of CVD. It also indicated that increasing in AIP is associated with other CVD risk factors. Modification of lifestyle including increase of physical activity and reduction of sedentary lifestyle is strongly recommended.