UNIVERSITI TEKNOLOGI MARA

T-CADHERIN STATUS AMONG NEGRITO ABORIGINES AND ITS ASSOCIATION WITH METABOLIC SYNDROME AND ATHEROGENESIS

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ABSTRACT:

Introduction: T-cadherin is hypothesized to provide cardioprotection by mediating the anti-atherogenic effects of adiponectin. Previous studies have shown strong expression of the *CDH13* gene which encodes for T-cadherin, among the Negrito aborigines. This study aimed to determine the status of T-cadherin in this population, as well as its association with biomarkers of coronary risk, traditional risk factors for coronary artery disease (CAD) and individual components of metabolic syndrome (MS).

Materials & Methods: This cross-sectional study recruited 150 Negritos (the minimum samples size was established at 120 based on the OpenEpi Sample Size Calculator, with a confidence level of 80% and prevalence of high Framingham risk score among inland aborigines at 25%). The limited sample size is attributable to the small total population of the Negrito aborigines (estimated at 4500), as well as their remote living areas which made access to them a challenge. Demographic data was collected by way of interview questionnaire and physical examination. Cardiometabolic parameters analysed included total cholesterol (TC), triglyceride (TG) and high density lipoprotein cholesterol (HDL-c) concentrations which were measured by enzymatic reference methods on an automated analyser (Cobas 400 PLUS, Roche Diagnostics, Germany). Low density lipoprotein cholesterol (LDL-c) concentrations were derived by calculation using the Friedewald equation. Plasma glucose was analysed by hexokinase method on an automated platform (Cobas Integra 400, Roche Diagnostics, Germany). Serum hsCRP and Lp(a) concentrations were analysed on an automated Cobas 400 PLUS analyser (Roche Diagnostics, Germany), while T-cadherin and sICAM-1 were analysed by ELISA (Wuhan Fine Biological Technology Co.,Ltd., Hubei, China and eBioscience Bender MedSystems, Vienna, Austria, respectively).

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1.   Introduction

1.1 The Negrito Orang Asli

Peninsular Malaysia's aborigines or Orang Asli (OA) only represent a small portion (0.5%) of the Malaysian population and consist of three sub-tribes (Negrito, Senoi and Proto-Malay)[1]. The Negrito OA are easily recognisable by their black wooly hair, dark skin, short stature, rounded face and wide nose that largely resemble the people in Papua New Guinea, Australian or African aborigines in general[1].The reclusive Negrito can be found in remote locations such as the deep jungles of Perak and Kelantan[1].

Although there are very few reports on the metabolic profile of the Malaysian OA, they have given us a slight insight on the possible urbanization of various tribes of OA that has led to the observation of metabolic diseases among this population. A previous study reported on the health status of Lanoh ethnic sub-groups of OA and showed that out of 205 OAs recruited, 8.9% were recently diagnosed with hypertension, 6.7% had hypertension and diabetes melitus (DM) and 26.7% had pre-obesity[2]. A larger population study conducted, identified central obesity and hypertension among OA sampled from 7 different subtribes and 8 settlements[3]. What was more alarming, was the report by Aziz et al (2016) which highlighted the higher percentage of OA having hyperinsulinaemia and high, high-sensitivity C-reactive protein (hsCRP) levels[4]. The report also showed a higher percentage of in-landers being categorized as high risk by the Framingham Risk Score, which forecasts 10-year risk of cardiovascular disease. These reports strongly imply that non-communicable diseases (NCDs) such as hypertension, dyslipidaemia, central obesity and DM, have gradually led to the increase in coronary artery disease (CAD) risk among the OA.