UNIVERSITI TEKNOLOGI MARA

BIOMARKERS OF ATHEROGENESIS IN POST MORTEM CENTRAL OBESITY CASES

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Thesis submitted in fulfillment
of the requirements for the degree of
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CONFIRMATION BY PANEL OF EXAMINERS

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I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

Prevalence of obesity is increasing in Malaysia and has resulted in a heavy economic burden for the country due to coronary heart disease (CHD). Central obesity is associated with coronary heart disease, and is linked to major cardiovascular risk factors. Visceral fat has been reported to be more atherogenic than subcutaneous fat due to its function in releasing atherogenic cytokines which promotes the progression of CHD. This present study aims to investigate tissue expression of biomarkers of inflammation (C-reactive protein) CRP and (Interleukin-6) IL-6, biomarkers of prothrombogenesis (Plasminogen activator inhibitor-1) PAI-1 and (tissue type-plasminogen activator) t-PA and adipokines, resistin and visfatin, between post mortem obese cases and lean controls, and between visceral and subcutaneous adipose tissue. A total of 72 subjects (61 males and 11 females, (mean±SD): 80.9±25.0 years) were recruited. Visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) were sampled from centrally obese (n=35) and lean (n=37) postmortem subjects. Central obesity was defined as waist circumference of >80cm in females, and >90cm in males. Immunohistochemistry was performed to detect adipocyte expression of all the biomarkers, scored using a semi-qualitative method. The result showed significantly higher expression ($p<0.05$) of CRP, resistin and visfatin in VAT of obese as compared to lean subjects. Comparing the expression in obese group, CRP, PAI-1 and resistin shows a significantly higher expression in VAT than SAT ($p<0.05$). This suggests that subjects with central obesity are predisposed to enhanced inflammation status as well as increase in atherogenic adipokines, which may contribute to the pathogenesis of the adverse cardiovascular effects observed in centrally obese individuals.

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