正常血壓代謝症候群之個案動脈硬化與 24 小時血壓相關性
Arterial Stiffness and Ambulatory Blood Pressure in Normotensives With the Metabolic Syndrome

中文摘要

背景：許多研究已經指出代謝症候群會增加心血管疾病的危險性及致死率，也有研究發現過度的清晨血壓升高、過度的夜間血壓降幅或夜間血壓降幅減少皆與心血管疾病的危險性及致死率相關。有研究指出，代謝症候群可以預測晝夜血壓降幅的減少，但也有研究發現，代謝症候群患者相較於無代謝症候群的人，出現正常血壓降幅的比率並無差異。代謝症候群與晝夜血壓降幅減少可能與病患動脈硬化情形有關，本研究假設個案動脈硬化值越嚴重其晝夜血壓差值越少，並以正常血壓代謝症患者探討其動脈硬化與晝夜血壓降幅減少的相關性。

方法：本研究以 National Cholesterol Education Program（NCEP）Adult Treatment Panel III (ATPIII)爲代謝症候群收案條件並以代謝症候群分數計分。研究中以 Cardio-ankle vascular index（CAVI），及頸部動脈超音波掃描內頸總動脈厚度反應動脈硬化的程度，以動態血壓計每隔 30 分鐘自動測量並紀錄血壓，連續測量 2 個 24 小時的血壓，並依據病患自行記載睡眠及甦醒時間，計算夜間平均血壓下降值及甦醒後血壓上升值。

結果：共收案 88 位，其中 73 位個案資料納入分析，個案平均年齡 48 歲。CAVI 值與內頸總動脈厚度兩者無顯著相關性（r =- .29, p = .17），而代謝症候群分數與 CAVI 值呈中度正相關（r = .3, p = .009），顯示代謝症候群分數越高其動脈硬化值越嚴重。CAVI 值越高嚴重其晝夜血壓差值越多（r = .3，p = .009）。將個案分成正常晝夜降幅、晝夜降幅減少、過度晝夜降幅等三組，發現三組的 CAVI 值及清晨血壓上升值有顯著差異（F = 4.72, p = .011; F = 6.73, p = .002），而事後檢定顯示過度晝夜降幅的個案其 CAVI 明顯較高於晝夜降幅減少的個案（P = .012），清晨血壓上升值亦顯著高於晝夜血壓降幅減少個案（p = .002）。

結論：本研究發現正常血壓代謝症候群個案的代謝症候群分數與 CAVI 值呈正相關，推測發生冠狀動脈心臟病的危險性也越高。CAVI 與晝夜血壓下降值成正相關但 CAVI 與清晨收縮壓激增值無統計顯著相關。發現過度晝夜降幅個案其 CAVI 值與清晨收縮壓激增值明顯較晝夜血壓降幅減少組高。

關鍵字：代謝症候群、動態血壓、動脈硬化。

英文摘要

Title of Thesis: Arterial stiffness and Ambulatory Blood Pressure in Normotensives with the Metabolic Syndrome

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Background: Metabolic syndrome (MS) is associated with an increased risk for cardiovascular events. Influence of the MS on arterial stiffness has been supported by previous studies. Artery stiffness is an important predictor of cardiovascular morbidity and mortality. This association could contribute to the higher cardiovascular risk in MS. Disruptions of circadian rhythm of blood pressure (BP) assessed by ambulatory BP monitoring, such as excessive morning surge and excessive nocturnal dipping or blunted nocturnal dipping (non-dipping), have been shown to be associated with target organ damage. While some studies have shown that MS may predict non-dipping status, others have shown contradicting results. Whether or not individuals with MS exhibit a non-dipping status may depend on the degree of arterial stiffness. Moreover, MS and non-dipping may share the some pathogenesis. This study, therefore, aims to investigate the relationship between arterial stiffness and parameters of ABP in normotensive individuals with MS.
Methods: Arterial stiffness was determined by cardio-ankle vascular index (CAVI) and internal common carotid intima using ultrasound. Ambulatory blood pressure was measured with an BP monitor every 30 minutes for two 24-hour period.
Results: A total of 88 participants enrolled in the study and data from 77 participants were included for data analysis. There was no significant correction between CAVI and internal common carotid intima ($r = -0.29$, $p = .17$). MS score significantly corrected to CAVI($r = .3$, $p = .009$). CAVI significantly correlated to dipping status ($r = .3$, $p = .009$). The three groups with different dipping status significantly differed in the CAVI value and the morning BP surge ($F=4.72$, $p = .011$; $F=6.73$, $p = .002$). The extreme dippers had significantly higher levels of CAVI and morning BP surge compared to the non-dippers ($p = .012$, $p = .002$)。

Keyword: Metabolic Syndrome, Ambulatory Blood Pressure, Cardio-ankle Vascular Index.