慢性壓力與代謝症候群危險因子及飲食生活型態的相關性

The correlation between chronic stress and metabolic syndrome risk factors, diet or lifestyle

中文摘要

壓力會影響情緒，處於壓力狀況時身體會分泌一些與壓力相關的荷爾蒙，影響體內代謝平衡。壓力是否與飲食生活型態或慢性疾病及代謝症候群的發生有關，是值得探討的問題。

本研究主要目的爲探討慢性壓力與代謝症候群危險因子及飲食生活型態是否有相關。受試者來自臺北醫大學附設醫院家庭醫學科預防保健中心，計 154 位(男性 79 位，女性 75 位)，平均年齡 38.3±6.8 歲之健康檢查民眾，經受試者同意，始進入本研究。在 41 天的收案期間，收案日上午 8:00~9:30 受試者檢測空腹血液生化值及血清可體松濃度、測量體位、血壓，並填寫飲食生活型態問卷及壓力知覺量表(Perceived stress scale, PSS)。研究結果顯示，血清可體松濃度與壓力分數值呈負相關。當以血清可體松濃度做爲壓力之生理反應測量值，全體受試者及男性受試者之血清可體松濃度與收縮壓、舒張壓、空腹血糖呈正相關；女性受試者之血清可體松濃度僅與舒張壓呈正相關，但與腰圍、三酸甘油酯呈負相關。以血清可體松濃度≥或<9.7 μg/dl 分別分爲可體松高與低兩組，可體松高組所有受試者血清可體松濃度與腰圍、收縮壓、舒張壓呈正相關；可體松高組的男性血清可體松濃度與收縮壓、舒張壓、空腹血糖呈正相關；可體松高組的女性血清可體松濃度僅與舒張壓呈正相關。可體松低組所有受試者及男性血清可體松濃度僅與收縮壓呈正相關；可體松低組的女性血清可體松濃度僅與腰圍呈負相關。男性與女性相較，且無論可體松高低，腰圍、收縮壓、舒張壓、三酸甘油酯均顯著爲高，高密度脂蛋白膽固醇則顯著爲低。與可體松低組相較，可體松高組受試者之收縮壓、舒張壓顯著爲高。而可體松高組的女性其腰圍及三酸甘油酯卻顯著爲低。就可體松高低兩組而言，僅在「情緒不好或無聊時會想吃東西」及「因工作忙碌或外在壓力，以致進食量增加」兩個項目之飲食行爲有顯著差異。

總結之：慢性壓力與代謝症候群危險因子的關係受血清可體松濃度高低及性別的影響。可體松高組，壓力與腰圍、收縮壓、舒張壓呈正相關；可體松低組，壓力僅與收縮壓呈正相關。可體松高組的男性，壓力與收縮壓、舒張壓、空腹血糖呈正相關；可體松低組的男性，壓力僅與收縮壓呈正相關。可體松高組的女性，壓力僅與舒張壓呈正相關；可體松低組的女性，壓力僅與腰圍呈負相關。而本研究可體松濃度高低(壓力大小)與飲食生活型態的相關性並不顯著。

關鍵字：壓力、可體松、代謝症候群

英文摘要

Stress affects emotion. The metabolic homeostasis can be influenced by stress stimulated hormones secreted from the body under stress situation. It should be further investigated whether stress correlates with dietary habits and lifestyle as well as the occurrence of metabolic syndrome.

The aim of this study is to investigate whether chronic stress correlates with the risk factors of metabolic syndrome, dietary habits, or lifestyle. One hundred and fifty four subjects (79 males and 75 females) aged 38.3±6.8 years were recruited from the Preventive Healthcare Center of the Department of Family Medicine at Taipei Medical University Hospital, and entered the study after signing the consent. Fasting blood was drawn at 8:00~9:30 a.m. within forty-one days. Biochemical parameters, serum cortisol concentration, authropometric assessment, and blood pressure were measured. Meanwhile, questionnaire on dietary habits and lifestyle and the Perceived Stress Scale (PSS) were also collected. The data indicated that serum cortisol concentration was negatively associated with stress score. Serum cortisol concentrations of all subjects and males were positively correlated with systolic pressure, diastolic pressure, and fasting blood glucose when the serum cortisol concentration was the indicator of physiological stress response. Serum cortisol concentrations of the female subjects were positively associated with diastolic pressure, but negatively associated with waist circumference and serum triglycerides. The subjects were divided into the low and high cortisol groups by serum cortisol concentration with the cut point of 9.7 μg/dl. Serum cortisol concentration in the high cortisol group (serum cortisol concentration ≥ 9.7 μg/dl) was positively associated with waist circumference, systolic pressure, and diastolic pressure. Furthermore, serum cortisol concentrations of the males in the high cortisol group showed the positive association with systolic pressure, diastolic pressure, and fasting blood glucose. Serum cortisol concentrations of the females in the high cortisol group appeared the positive association with diastolic pressure. Serum cortisol concentrations of all subjects in the low cortisol group (serum cortisol concentration < 9.7 μg/dl) and males in the low cortisol group were only positively associated with systolic pressure. Furthermore, serum cortisol concentrations of the females in the low cortisol group appeared the negative association with waist circumference. The males had higher waist circumference, systolic pressure, diastolic pressure, and serum triglycerides than the female regardless of cortisol level. However, high density lipoprotein cholesterol level was lower in the males than in the females. The high cortisol group had higher systolic and diastolic pressure than the low cortisol group. However, the females in the high cortisol group decreased waist circumference and serum triglycerides. The dietary behaviors in “you want to eat when your mood is

bad”and“you increase food intake due to busy work or external stress”differed significantly between the low and high cortisol groups .
In conclusion, the correlation between chronic stress and the risk factors of metabolic syndrome is affected by serum cortisol concentration and gender. Stress is positively correlated with waist circumference, systolic pressure, and diastolic pressure in the high cortisol group (serum cortisol concentration ≥ 9.7 μg/dl), whereas stress is only positively correlated with systolic pressure in the low cortisol group (serum cortisol concentration < 9.7 μg/dl). Furthermore, stress is positively correlated with systolic pressure, diastolic pressure, and fasting blood glucose in the males of the high cortisol group, whereas stress is only positively correlated with systolic pressure in the males of the low cortisol group. Stress is positively correlated with diastolic pressure in the females of the high cortisol group, whereas stress is only negatively correlated with waist circumference in the females of the low cortisol group. However, the relationship between cortisol level (stress level) and dietary habits and lifestyle is not significant in this study.

Keysords: stress, cortisol, metabolic syndrome