

健康受測者及冠狀動脈繞道手術後病人手脈搏波波速的研究

Hand Pulse Wave Velocity in Healthy Subjects and Patients After Coronary Artery Bypass Graft Surgery

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關鍵詞:

脈診;脈搏波波速;動脈僵硬度;老化;性別;冠狀動脈繞道手術;

Keyword:

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摘要:

脈診是中醫診斷的重要方法。傳統診脈方法以二十八脈為主要臨床脈象種類，在臨床應用與研究中有很大的侷限性。到現在為止，橈動脈有關脈搏波波速與動脈僵硬度的脈率研究仍很少見。動脈僵硬度的增加是血管病變的病理特徵之一，而且與老化、性別、高血壓和心血管疾病有密切關係。脈搏波波速已被証實是動脈僵硬度的指徵與血管病變的標記之一。因此，本研究的目的是調查手的脈搏波波速(hPWV)如何受年齡、性別與心血管疾病等因子的影響。總計有146位健康受測者(72位男性，74位女性)及47位接受過冠狀動脈繞道手術的冠心病患者(43位男性，4位女性)參與本項研究。藉由測量脈搏波傳遞時間和從橈骨莖突到中指指腹中點的距離，並使用下列的公式來計算hPWV： $hPWV (m/s) = \text{脈搏波橫越的距離 (m)} / \text{傳遞時間 (s)}$ 我們發現年齡是 hPWV 的最顯著的相關因子($p < 0.0001$)。hPWV隨著年齡的增長而減少，在健康的受測者和CABG患者分別是每年減少0.033及0.037 m/s。在多變量線性迴歸分析中，我們發現性別也具有預測hPWV的能力($p < 0.001$)，而且男性是一個與hPWV增加有相關性並具統計學意義且獨立的預測因子。雖然男性CABG患者具有較高的血壓，但與年齡相配的健康男性比較時，兩者的hPWV並無明顯的差異。我們的結論是，在健康受測者及已接受冠狀動脈繞道手術之冠狀動脈疾病患者，年齡是預測hPWV 極顯著的負相關因子，而在健康受測者，性別也是一個與hPWV有相關的有意義及獨立的因子；男性CABG患者與年齡相配的健康男性，兩者的hPWV並無明顯的差異。

Abstract:

Pulse diagnosis is one of the important diagnostic methods in Traditional Chinese Medicine. Till now, there are few studies concerning the relation between pulse wave velocity and arterial stiffness. Increasing arterial stiffness is one of the pathological features of vascular disorders, and is closely associated with ageing, gender, hypertension and cardiovascular disease. Pulse wave velocity is known to be an indicator of arterial stiffness and a marker of vascular disorder. The aim of this study was to examine how was the arterial pulse wave velocity measured at the hand (hPWV) affected by age, gender and cardiovascular disease. A total of 146 healthy subjects (72 men and 74 women) and 47 patients after coronary artery bypass graft surgery (CABG) (43 men and 4 women) participated in this study. The transit time and the distance from the styloid process of the radius to the mid-portion of the 1st phalanx of the 3rd finger were measured, and the hPWV was calculated by using the following formula: $hPWV (m/s) = \text{traversed distance (m)} / \text{transit time (s)}$. The results revealed that age was the strongest contributor to hPWV ($p < 0.0001$). The decrease in hPWV with age in all healthy subjects and CABG patients was - 0.033 and - 0.037 m/s per year, respectively. Multivariate linear regression analysis showed that male gender also account for the ability to predict hPWV ($p < 0.001$) and is a significant and independent factor associated with increased hPWV. Despite higher blood pressure in male CABG patients, there was no significant difference in hPWV when compared with age-matched healthy men. In conclusion, age is the dominant negative factor contributing to hPWV in healthy subjects and patients after CABG, Gender also is a significant and independent factor associated with increased hPWV in healthy subjects. There is no difference in hPWV between healthy subjects and patients after CABG.