GW23-e2644 CMR EVALUATION OF CARDIAC FUNCTION IN PATIENTS WITH METABOLIC SYNDROME IMPACT ON THE STUDY OF HYPERTENSION
doi:10.1136/heartjnl-2012-302920ad.51

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Objectives MRI in the evaluation of the metabolic syndrome (metabolic syndrome, MS) on left ventricular function in hypertensive patients in clinical application.

Methods the Materials and Methods 2.1, the study Collected in March 2011 June 2011 Taiyuan Central Hospital, Cardiology, Endocrinology, intervention wards and outpatient or inpatient treatment for patients with hypertension, repeated hospitalisation of patients with first hospitalisation prevail. According to the 2004 Chinese Medical Association Diabetes Branch of the Chinese population recommended for diagnostic criteria for metabolic syndrome (6): body mass index (BMI) ≥25 kg/m²; triglyceride (TG) ≥1.7 mmol/l; high-density lipoprotein—cholesterol (HDL-C) M <0.9 mmol/l, women <1.0 mmol/l; fasting plasma glucose (FPG) ≥6.1 mmol/l and (or) 2 h after glucose load glucose ≥7.8 mmol/l and (or) has been diagnosed and treatment of diabetes. The concomitant hypertension and abnormal two or more diagnosis of MS. 41 cases of hypertensive patients divided according to whether the other metabolic abnormalities: hypertension, metabolic syndrome (HMS) 22 cases, including 14 males and 8 females, average age (65±5) years of age. Essential hypertension (EH) 19 patients, 12 males and 7 females, mean age (66±6) years of age. Selected patients with exclusion of secondary hypertension, ischaemic heart disease, cerebrovascular disease, liver and kidney dysfunction, heart failure (NYHII–III level). Medical examination and treatment from those selected in the control group 22 patients, 13 males, 9 females, average age (65±5) years of age. 2.2, data collection instruments and methods 2.21, General detection All patients were admitted to hospital with a standard method of testing blood pressure, height, weight, electrocardiogram; the next morning fasting state blood glucose, blood lipids, fasting is defined as at least 8 h without caloric intake. 2.22, Equipment and inspection methods (1) Equipment: The 1.5 T superconducting magnetic resonance scanner (Sonata, Siemens), and phased array body surface coil, precordial ECG gating. TurboFlash2D film sequence parameters: TR: 45 ms, TE: 1.5 ms, flip angle 150, thickness: 6.0 mm, FOV: 285 mm×380 mm, matrix 119×256, 1 s scan acquisition time 15–19 s, the time resolution 10 ms, 24 frames per cardiac cycle capture images. (2) Check: Check the front again on the inspiratory and expiratory training patients, Zhu Huanzhe shallow breathing in breath-hold scan mode. First, check the pulse sequence applied TurboFlash2D cardiac axial and sagittal orientation scan, and then like on the axial position, parallel to the left ventricular outflow tract for positioning of the image and right ventricular outflow tract parallel to the positioning of images, the vertical the left and right ventricular outflow tract position as, in the heart of the Ministry of base, middle and apical part of the Department of breath do not be scanned across the surface FLASH pulse sequence. 2.23, image analysis Application of Siemens, Sonata workstation dedicated cardiac function measurement software (Argus) for
measurement of cardiac function, the application of semi-automatic depicting left ventricular short axis endocardial and epicardial contours. Obtained left ventricular volume—time curves, calculated left ventricular (LV) heart function parameters: Left ventricular end-diastolic volume (EDV), end-systolic volume (ESV), stroke volume (SV), cardiac output (CO), ejection fraction (EF), myocardial mass (MM), and left ventricular peak ejection rate (PER), peak ejection time (TPER), peak filling rate (PFR), time to peak filling (TPFR), increased wall thickness ratio (TN). 2.24, statistical analysis Analysis using SPSS14.0 statistical package. Measurement data with the mean±SD (±s) that the differences between the groups of data into a separate group t test. Count data using χ² test, test level to take α=0.05, p<0.05 was considered statistically significant.

Results In normal control group, hypertension, high blood pressure metabolic syndrome group differences were statistically significant (p<0.05), such as: ejection fraction (EF) three groups were: left ventricular peak ejection rate (PER) three groups were (ml/sec): 71.60±7.82, 65.88±10.28, 58.28±8.46, peak ejection time (TPER) three groups, respectively (msec): 493.77±138.41, 452.30±117.54, 319.55±80.59, peak filling rate (PFR) three groups were (ml/sec): 477.03±51.48, 443.51±112.43, 394.32±133.35, time to peak filling (TPFR) three groups, respectively (msec): 67.53±11.73, 183.17 ±23.55, 318.65±19.27.

Conclusions HMS and EH can cause changes in left ventricular function, and metabolic dysfunction may further aggravate this change; MRI can accurately determine the film HMS, EH patients with left ventricular heart function parameters, and good reproducibility.
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*Heart* 2012 98: E309-E310
doi: 10.1136/heartjnl-2012-302920ad.51

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