Does fasting in Ramadan affect right ventricular diastolic function in hypertensive patients? A Moroccan prospective observational study

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Introduction: Previous studies have indicated that Ramadan fasting has beneficial effects on cardiovascular risk factors, especially blood pressure (BP) and heart rate (HR). However, there is a scarcity of scientific literature regarding its effects on diastolic function for the right ventricular (RV) in hypertensive patients.

In the present study, the effect of Ramadan fasting on diastolic right ventricular function has been investigated.

Method: This prospective observational study was conducted on two groups of individuals who were determined to complete Ramadan fast. 22 patients under hypertension treatment were allocated to the case group and 23 healthy individuals were selected as the control group. Transthoracic echo-cardiogram evaluating diastolic parameters of the RV (tricuspid flow, tissue Doppler, Tei index, pulmonary pressures and vena cava changes) was carried out during 2 periods: prior to Ramadan and during the last 15 days of it. All patients continued their medication. BP, weight, body mass index (BMI), and waist circumference were also compared among the groups.

Results: In the case group, there was a significant reduction in subjects’ weight during the second period of the experiment; Systolic and diastolic BP decreased from 142.73 to 134 and from 79.90 to 76,6mm of Hg respectively (p<0.01). Also, a significant improvement was observed in the A wave (in 51.57% vs. 13% of case group) during the second period (p<0.01). E/A decreased from 0.90 to 0.87 but was not statistically significant. For the other diastolic parameters, we noted an improvement which was not statistically significant.

Conclusion: This study indicated a significant improvement in the subjects’ BP over second period of measurements; also, no high-risk variations in diastolic parameters of the RV were observed among the subjects.

0122
Arrhythmic risk of hypertensive heart disease

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Introduction: Left ventricular hypertrophy in hypertensive heart disease favors the occurrence of atrial and ventricular arrhythmias that put the hemodynamic and embolic risk. The aim of our study was to investigate the prevalence of cardiac arrhythmias in this population and to offer sufficient support.

Patients and Methods: This is a prospective, analytical 10 months including 144 hypertensive patients with and without LVH hypertensive. We placed these patients a HolterECG recording over 24 hours. We excluded all patients with other types of heart disease and those taking beta-blocker treatment and / or antiarrhythmics.

Results: The average age of our patients was 64 ± 8 years with female predominance. 66% of patients with LVH showed heart rhythm disorders versus 6% of patients without LVH. Ventricular premature beats occurred in 16.6% versus 4.3% with LVH without LVH, ventricular tachycardia not supported in 2.7% with 0% LVH against the supraventricular extrasystoles occurred in 55.6% without LVH against 13.6%. ACFA and atrial tachycardia with LVH in 11.1% versus 1.1%. The variability of the heart rate was altered in 33% with LVH versus 66% without LVH.

Discussion and Conclusion: Arrhythmias represent the third face of hypertensive heart disease after coronary artery disease and heart failure. Holter ECG recording information on the three factors of atrial or ventricular arrhythmias: the trigger, the state of the autonomic nervous system and the search for early ischemia. An early and effective management of hypertension is necessary to prevent the onset or regress left ventricular hypertrophy, determining factor in the genesis of these arrhythmias as atrial ventricular that.

0159
Increased NOX4 expression in mice knockdown of angioptien-like 2 worsens pressure overload-induced cardiac dysfunction but preserves vascular endothelial integrity

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Angiotatin-like 2 (angptl2) is a pro-inflammatory and pro-oxidative protein that induces endothelial dysfunction in mice. The impact of angptl2 on cardiac function is still unknown. We hypothesized that angptl2 could contribute to cardiac dysfunction and that knocking-down angptl2 would be protective against pressure overload. We investigated both cardiac and vascular endothelial functions in angptl2 knockdown mice (KD) versus wild-type (WT) littermates, in response to a 6-week pressure overload induced by transverse aortic constriction (TAC). TAC increased systolic pressure in the right carotid artery by 60% in WT, but only 28% in KD mice. In TAC-WT, but not in KD mice, carotid and posterior cerebral arteries isolated from the high-pressure right side displayed increased wall thickness, a remodeling associated with endothelial dysfunction. In contrast, and contrary to our hypothesis, TAC induced a more severe cardiac remodeling in KD than in WT mice: TAC-KD mice displayed a greater heart weight / tibia length ratio, as well as a higher gene expression of hypertrophic remodeling molecular markers, (ANP, BNP, MysHβ/MyoHα) when compared to TAC-WT mice. Cardiac function measured by Millar catheter also showed greater alteration of the left ventricular relaxation in TAC-KD mice (increased minimal and end diastolic pressures, 25% relaxation rate), suggesting cardiac contractile dysfunction. Finally, we observed, only in hearts from TAC-KD mice, an increase in mRNA and protein expression of NOX4 which is known to produce H2O2, a deleterious hypertrophic stimulus in cardiomyocytes, but is a vasodilatory factor. This is the first demonstration that angptl2 knockdown paradoxically worsens cardiac hypertrophy and contractile dysfunction induced by pressure overload, contrasting with the preserved arterial wall structure and endothelial integrity. Up-regulation of NOX4 could, at least partly, contribute to these opposite effects in angptl2 KD mice.

0103
Beneficial effects of berries intake on survival and cardio-renal changes induced by high salt diet in Dahl/SS rat

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Purpose: Cardiovascular diseases (CVD) are the leading cause of death in the developing world and can be associated with inadequate eating habits, stress and physical inactivity. CVD incidence and prevalence are strongly influenced by comorbidities such as hypertension (HT). Epidemiological studies have shown a consistent relationship between the consumption of fruits and vegetables and a reduced risk of CVD susceptibility. Our hypothesis is that these beneficial effects can be related to a modulation of cell metabolism and to mitochondrial protection mechanisms. The aim of the study was to evaluate in vivo the efficacy of berries mixture in high salt (HS) fed rats, a validated model of HT.