HIGH PREVALENCE AND CLINICAL SIGNIFICANCE OF HYPERTENSIVE RESPONSE TO DOBUTAMINE STRESS IN END STAGE RENAL DISEASE PATIENTS UNDERGOING EVALUATION FOR RENAL TRANSPLANTATION

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Background: Patients with end stage renal disease (ESRD) have a cardiovascular mortality about 15-30 times the general population. Dobutamine stress echocardiography (DSE) is commonly performed in their preoperative cardiac evaluation before renal transplantation. Hypertensive response during DSE defined as stress induced systolic blood pressure >220 mmHg or diastolic blood pressure of >110 mmHg occurs in about 1% of DSE studies. This phenomenon seems to be more frequent in patients with renal failure patients, but its precise frequency and clinical implications in ESRD population is not known.

Methods: Of the 250 consecutive adult ESRD patients undergoing DSE for pre-kidney transplant cardiac risk assessment at our clinic 53 (22%) had a hypertensive response. Its clinical correlates and implications were analyzed.

Results: Base line characteristics (n=250) were: age 57+11 years, female 47%, hypertension 96%, diabetes 72%, 82% on hemodialysis. The predictors of hypertensive response were higher baseline systolic (p<0.0001) and diastolic (p=0.04) blood pressures, LV hypertrophy on echocardiography (p=0.01), treatment with angiotensin converting enzyme inhibitors (p=0.004) and marginally number of antihypertensive agents (p=0.08). Of the 53 (22%) with a hypertensive response, 25 (47%) had stress induced segmental wall motion abnormalities (SWMA). Of the 25 patients with SWMA, 22 had a coronary angiogram and of them 45% had significant coronary artery disease. The hypertensive response was a strong predictor of SWMA (RR 2.8, p=0.002), but was not predictor of significant CAD (RR 1.1, P=0.81). Neither the hypertensive response nor a true or false positive stress was predictive of mortality over a period of 22 months.

Conclusions: 1) ESRD patients have high prevalence of hypertensive response to dobutamine stress (22%) and this is predicted by basal blood pressure levels, LV hypertrophy and the need for larger number of antihypertensive medications. 2) Stress induced SWMA associated with a hypertensive response is a poor predictor of significant coronary artery disease (55% false positive rate) and is not associated with increased mortality.