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THE VALUE OF N TERMINAL PRO NATRIURETIC PEPTIDE (NT PRO BNP) IN THE DIAGNOSIS OF CARDIAC DYSFUNCTION BY ECHOCARDIOGRAPHY IN SECONDARY CARE CLINICS. PROSPECTIVE COMPARATIVE OBSERVATIONAL STUDY

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doi:10.1136/heartjnl-2013-304019.118

Purpose Echocardiography is a vital diagnostic imaging tool in secondary care medical and surgical out patient clinics (OPC) for various cardiac diseases. This study was designed to determine if NT pro BNP testing could improve the clinical probability prior to echocardiography referrals.

Method Study was designed as a prospective comparative observational study. Patients were recruited based on echocardiography requests for assessment of LV function from medical and surgical out patient clinics. Receiver Operator Characteristic (ROC) curves were established to determine the most sensitive and specific NT pro BNP value for detecting abnormal systolic function (EF<50%) and abnormal cardiac findings including diastolic dysfunction, left ventricular hypertrophy (LVH) and valvular heart disease (VHD). Echocardiography was used as the gold standard diagnostic test.

Results 116 OPC echocardiography requests were considered with 74 patients included (52.3% males and 47.7% females). Mean age was 60 years (26–91). Referrals were from cardiac, general medical, surgical, care of the elderly and oncology OPCs (54%, 18.2%, 15.9%, 6.8% and 4.5% respectively). 54.5% of patients had completely normal echocardiographic findings and 86.4% had normal LV systolic function. ROC curves showed that NT pro BNP cut off value of 125 pg/ml had 100% sensitivity, 70.2% specificity, 100% negative predictive value (NPV) and 34% positive predictive value (PPV) for detecting systolic LV dysfunction. This cut off value had 80% sensitivity, 92% specificity, 85% NPV and 89% PPV for detecting echocardiographic abnormalities including LVF, LVH, diastolic dysfunction and VHD in this cohort.

Conclusions NT pro BNP cut off value of 125 pg/ml is a good rule out test for impaired LV systolic function in secondary care settings for different clinical specialties with very high sensitivity and NPV which are comparable to results from a previous study carried out in the community. Sensitivity of this cut off value is lower for detecting any echocardiographic abnormality but with higher specificity. A lower cut off is probably required to improve sensitivity. NT pro BNP can be a useful test in ruling out cardiac disease especially systolic LV impairment in secondary care medical and surgical OPCs with good implications on reducing unnecessary referrals for echocardiography.