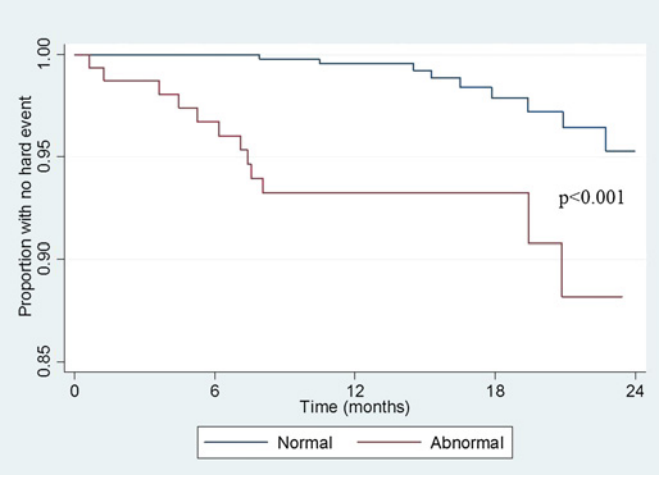

Abstract 101 Figure 2 Kaplan–Meier survival estimate of time to hard event.

102 POCKET-SIZE HAND-HELD CARDIAC ULTRASOUND IN THE HANDS OF STUDENTS AND JUNIOR DOCTORS: DOES IT IMPROVE DIAGNOSTIC ACCURACY OVER HISTORY, PHYSICAL EXAMINATION AND ECG?

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Background Even though patient history taking and physical examination remain the foundations of patient evaluation in daily clinical practise, there has been a decline in the accuracy of the later. Pocket hand held echocardiographic (PHHE) devices have recently been introduced and could potentially improve diagnostic accuracy in the hands of non-cardiologists. The amount of training required to achieve optimal results remains a matter of debate.
Aim We hypothesised that use of PHHE after limited training, can improve diagnostic accuracy even in the hands of medical students and inexperienced physicians.
Methods Five final year medical students and 3 junior doctors without prior echocardiographic experience participated in a standardised 2-h PHHE bed-side training program. Subsequently they assessed 122 patients (history taking, physical examination, ECG interpretation and PHHE). Their physical and echocardiographic findings were compared to those of a transthoracic echocardiography accredited cardiologist.
Results A total of 122 V-scans were performed of which 64 (53%) by final-year medical students and 58 (47%) by junior doctors. Mean age of the participants was 64±16.1 years and 87 (71.3%) were male. Out of 122 patients, 69 (56.6%) had LV dysfunction, 16 (13.1%) had RV dysfunction, 74 (52.5%) had valvular abnormalities, 5 (4.1%) had prosthetic valves, 6 (4.9%) had pericardial effusions and 4 (3.3%) ascending aorta disease. Mean±SD for diagnostic accuracy (maximum=1) after history, physical examination and ECG interpretation was 0.53±0.19 whereas addition of PHHE increased its value to 0.85±0.2 (Z=−8.964, p<0.001). In 88 (73.3%) patients there was concordance between cardiologist and trainees in LV assessment, in 23 (19.1%) trainees underestimated or overestimated LV by one grade and in 9 (7.4%) by at least two grades. When assessing for presence of moderate to severe left ventricular dysfunction by means of history and physical examination specificity was 84.9% and sensitivity only 25.9% whereas after PHHE these figures raised to 93.6% and 74.1% respectively. There were a total of 94 valvular lesions (present in 74 patients), 10 of which (10.6%) were stenotic and 84 (89.3%) regurgitant. There was a total of 40 moderate to severe valvular regurgitation lesions. Trainee sensitivity in identifying the afore mentioned lesions was 70% whereas specificity 98%. Regarding moderate to severe valvular stenosis sensitivity was 85.7% whereas specificity was 100%. Ausculatation for presence of valvular abnormality (without specifying which valve or what kind of abnormality) revealed a 93.8% specificity and a 45.9% sensitivity.
Conclusions In the current study use of PHHE after brief, bed-side training greatly improved the diagnostic accuracy of medical students and junior doctors, over and above history, physical examination and ECG interpretation.

103 AORTIC INFLAMMATION IS REDUCED, AND PARALELLES CHANGES IN AORTIC STIFFNESS BY ANTI-TNF α THERAPY IN RHEUMATOID ARTHRITIS

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Background Rheumatoid arthritis (RA) is a systemic inflammatory condition associated with increased cardiovascular risk which is not fully explained by traditional risk factors. Endothelial dysfunction and increased aortic stiffness may mediate some of the increased risk. Additionally, there may be direct vascular inflammation which could directly accelerate atherosclerosis. We hypothesised that patients with RA exhibit a subclinical aortic vasculitis which can be reversed with anti-tumour necrosis factor α (TNF) therapy.
Methods The aortas and carotid arteries of 15 patients with severe rheumatoid arthritis were imaged before and after anti-TNF therapy using 18F-fluoro-deoxyglucose positron emission tomography (FDG-PET) with CT co-registration. Tracer uptake was analysed in various arterial segments by measuring maximum standard uptake values (SUV) and subsequently corrected for blood uptake to obtain a target to background ratio (TBR). Carotid to femoral pulse wave velocity (PWV) as a measure of aortic stiffness, disease activity and inflammatory biomarkers were also measured.
Results Mean baseline aortic TBR was 2.07±0.20. Following anti-TNF α therapy, there was a significant reduction in abdominal aortic TBR (−0.18±0.27, p=0.03) and in the most diseased segment in the whole aorta (−0.48±0.59, p=0.01). TBR was also reduced in all other aortic segments and the proportion of hot slices (defined as TBR>1.9) was reduced by 31%, but these did not reach statistical significance. There was no change in carotid TBR following treatment. Aortic PVW was reduced by 0.43±1.0 m/s, p=0.1) and there was a significant correlation between a reduction in aortic PWV and abdominal TBR (R=0.57, p=0.03) and between aortic PWV and proportion of "hot" slices (R=0.66, p=0.01). There was a concomitant reduction in serum CRP (−8±12 mg/l, p=0.02) and disease activity (DAS28 −1.41±1.51, p=0.002).
Conclusions This study demonstrates for the first time that patients with RA have high aortic and carotid FDG uptake, suggesting subclinical vasculitis. Moreover, they exhibit a reduction in FDG uptake following anti-TNFα therapy, which correlated with a reduction in aortic stiffness. These results suggest that subclinical vasculitis could be the mechanism behind the increased cardiovascular risk and that effective treatment of inflammation may help to reduce the cardiovascular risk in this patient population.

104 ENHANCING ENDOTHELIAL INSULIN SENSITIVITY REDUCES NITRIC OXIDE BIOAVAILABILITY: A ROLE FOR NADPH OXIDASE-DERIVED REACTIVE OXYGEN SPECIES

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Introduction Insulin resistance at a whole body level and in the endothelium precedes type 2 diabetes. Insulin resistance at the level