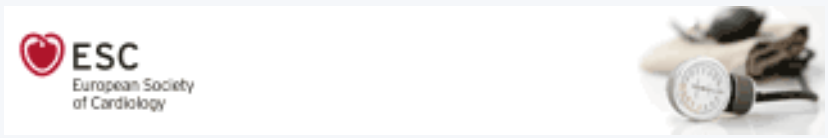

Pocket-size hand-held cardiac ultrasound as an adjunct to clinical examination in the hands of medical students and junior doctors FREE

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Abstract

Aims

While patient history taking and physical examination remain the cornerstones of patient evaluation in clinical practice, there has been a decline in the accuracy of the latter. Pocket-size hand-held echocardiographic (PHHE) devices have recently been introduced and could potentially improve the diagnostic accuracy of both medical students and junior doctors. The amount of training required to achieve optimal results remains a matter of debate. We hypothesized that the use of PHHE after limited training in the form of a tutorial can improve the clinical diagnosis even in the hands of medical students and inexperienced physicians.

Methods and results

Five final-year medical students and three junior doctors without prior echocardiographic experience participated in a standardized 2 h PHHE bedside tutorial. Subsequently, they assessed 122 cardiology patients using history, physical examination, ECG and PHHE. Their final clinical diagnosis was compared against that of a consultant clinician's and also expert in echocardiography. A total of 122 PHHE were performed of which 64 (53%) by final-year medical students and 58 (47%) by junior doctors. Mean ± SD for diagnostic accuracy after history, physical examination, and ECG interpretation was 0.49 ± 0.22 (maximum = 1), whereas the addition of PHHE increased its value to 0.75 ± 0.28 ($Z = -7.761$, $P<0.001$). When assessing left ventricular systolic dysfunction by means of history and physical examination, specificity was 84.9% and sensitivity only 25.9%, whereas after including findings from PHHE, these figures rose to 93.6 and 74.1%, respectively.

Conclusion
The use of PHHE after brief bedside training in the form of a tutorial greatly improved the clinical diagnosis of medical students and junior doctors, over and above history, physical examination, and ECG findings.
Keywords: Hand-held echocardiography, Pocket-size, Students, Junior doctors, Diagnostic accuracy
Topic:

- echocardiography
- cardiology
- physical examination
- students, medical
- diagnosis
- hand
- clinical diagnosis

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