

**SCA 25**

**USEFULNESS OF HAND-CARRIED ECHOCARDIOGRAPHIC DEVICES IN PERIOPERATIVE MEDICINE**

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Recently, several hand-carried ultrasound devices have been developed for fast, target specific transthoracic echocardiography (1). Miniaturization and decreased cost of this equipment has made it available to noncardiologists.

In order to evaluate its usefulness in perioperative settings we performed 53 examinations using Optigo (Phillips Medical) and Sonosite 180 Plus (Sonosite) hand-carried ultrasound devices.

Examinations were requested by anesthesiologists or critical care physicians to evaluate hemodynamic instability (40.0%) to rule out pericardial effusion or tamponade (13.0%), to assess heart function and structure (43.0%) and to rule out systolic anterior motion of mitral valve (4.0%). Examinations were performed preoperatively in 2.0%, intraoperatively in 8.0% and postoperatively in 90.0% of cases. Sixty five percent of the patients were males and 35% were females. Mean patients' age was 65 years (range 27-87). Optimal visualization of the heart was obtained in 25.0%, suboptimal in 70.0%, and in 6.0% the heart was not visualized. The question asked by a referring physician was satisfactorily answered in 74.0%, partially answered in 11.0% and not answered in 15.0% of cases. Failure to answer a question asked by a referring physician was associated with inability to visualize the heart in 3/8 cases and

suboptimal visualization in 5/8 cases. Standard transthoracic or transesophageal echocardiography followed our examination when it was requested by a referring physician in 67.0% of cases. Conclusions of standard echocardiographic examination completely matched limited echo findings in 71.0% cases, partially matched in 15.0% of cases, and were significantly different in 6.0% of cases. We suggest that target specific transthoracic echocardiographic evaluation of cardiac structure and function by a perioperative physician may be of help in managing a selective group of patients. Major limitations of this approach are frequent inadequate visualization of the heart with the current hand-carried echocardiographic devices and the limited number of anesthesiologists experienced in performing transthoracic echocardiography. Since misinterpretation of echocardiographic findings is common, information obtained with hand-carried ultrasound devices should be evaluated in conjunction with clinical and laboratory data and, when inconsistent, should be confirmed by alternative methods.

**Reference**

1. Seward JB, Douglas PS, Erbel R, Kerber RE, Kronzon I, Rakowski H, Sahn LD, Sisk EJ, Tajik AJ, Wann S. Hand-carried cardiac ultrasound (HCU) device: recommendations regarding new technology. A report from the echocardiography task force on new technology of the nomenclature and standards committee of the american society of echocardiography. *J Am Soc Echocardiogr.* 2002;15:369-73.