

Impact of Focused Ultrasound Examination as an Extension of the Physical Cardiovascular Examination

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Background: Although guidelines for the use of the Pocket Ultrasound Device (PUD) as an extension of the physical examination have been published, the impact of the use of PUD for this purpose remains unclear. We aimed to study the impact of PUD in the evaluation of patients in different clinical settings performed by physicians with different levels of expertise in echocardiography.

Methods: Twelve physicians (4 cardiac fellows, 4 cardiologists, 4 experts in echocardiography) performed 106 physical examinations extended by focused ultrasound examination in 28 (26%) outpatients and in 78 (74%) hospitalized patients. The PUD prototype used was a GE V-Scan weighing 390 grams.

Physicians filled out a questionnaire immediately after performing the examination to assess the impact of PUD on the patient management and its contribution to patient's diagnosis, assessment and treatment.

Results: Cardiac fellows performed 44% of the examinations, cardiologists 22% and echocardiographers 34%. In 61 cases (58%; 95% confidence interval [CI], 48% to 67%) PUD's results effected patient's management (diagnostic plan and/or treatment was altered). There was no significant difference between the 3 different levels of expertise of the physicians who performed the exam ($P=0.629$). PUD results altered the physicians' diagnosis in 20% of cases and supported it in 46%. Patient treatment was modified in 15% of the cases after undergoing PUD, including performance or cancellation of therapeutic procedures. Physicians reported that PUD provided information that contributed to patient assessment in 95% of the cases.

Conclusion: In a significant number of cases, extension of the physical examination by PUD altered the management of the patient (diagnostic plan and/or treatment plan) regardless of the level of expertise of the performer. According to our trial, the use of PUD contributed to the assessment of the patients in nearly all of the examinations performed.