

A new series on diagnostic echographic cases and living brief reviews: a potentially useful tool for clinicians edited by FADOI

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Sonography – similar to what happened almost two centuries ago with the introduction of stethoscopes – has completely changed patients' clinical management in Internal Medicine. The availability of performant, sometimes even small-sized and cost-effective machines, has allowed doctors in Internal-Medicine units to perform bedside-ultrasound examinations alongside regular clinical ones. The internist, unlike a general sonographer who performs an organ-oriented exam, often leads a symptom-oriented assessment, namely a focused investigation of the patient's clinical problem. Does this focused bedside sonography offer any kind of advantage compared to an ultrasound exam performed by an imaging specialist (such as a radiologist or cardiologist).^{1,2}

Like any other diagnostic procedure, bedside sonography must be evaluated on the basis of the qual-

ity of the exam and cost-effectiveness.³ This type of focused and symptom-oriented ultrasound appears to actually be cost-effective as it follows:

- to improve clinicians' ability to identify potentially unstable patients and to spot immediate and potentially fatal conditions in critical patients (a frequent situation in Internal Medicine settings);

- to correctly and quickly prescribe, in the event of a diagnostic exam, the appropriate therapy or otherwise guide to the most proper imaging evaluation;

- to avoid the need for further imaging investigation.

Naturally, for the exam to be cost-effective, it is mandatory that the doctor who performs the assessment has adequate expertise. It is well known that sonography is an operator-dependent diagnostic exam that requires proper training and that cannot be executed in the absence of adequate skills.⁴ The risk of misdiagnosis is, indeed, very high when ultrasound is performed by an inexperienced operator: false positive results can lead to more, often useless, tests, as well as false negatives, can be falsely reassuring and lead to underdiagnosis.

Thus, what kind of education (training) does an Internal Medicine resident or just an Internal Medicine doctor require to correctly use this tool that sonography can potentially be? In order to answer this question, it is necessary to consider, besides the correct interpretation of the ultrasound image, the importance of a correct acquisition of said image. Such acquisition is far more difficult than the mere interpretation of it because sonography, unlike the other conventional radiological techniques, is a dynamic exam, that uses a great number of projections whereas often only a few of them carry the essential diagnostic elements. Other than the difficulty of acquiring a correct image, there are also different layers and levels of interpretation: if some findings can easily and rapidly be obtained and interpreted by a beginner (*i.e.*, abdominal aortic aneurysm), others might need more qualification (*i.e.*, small hepatic lesion). As for any diagnostic techniques, to acquire adequate expertise, other than solid theoretical bases, a great deal of field training is required.

For all these reasons, implementing existing regu-

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lar education with formal ultrasound training, during medical school and especially during residency, appears to be fundamental. Nevertheless, the necessary level of training to guarantee the correct use of the methodology as well as a training strategy with validated guidelines that allow the acquisition of basic skills, have not yet been defined.

Internal Medicine residency does not always include, during its course, specific programs that evaluate skills and quality standards for sonography education and there is no specific post-residency training in this field. The Federation of Associations of Hospital Doctors in Internal Medicine (FADOI) has been trying to fill the void by implementing and creating a school of Internal Medicine Sonography.

The FADOI school was founded in 2011 and has the goal to promote the acquisition of skills among doctors working in Internal Medicine. The different levels of expertise and the relative skills needed were identified on the basis of the Clinical Competence document published by FADOI.⁵

Specifically, in what pertains to ultrasound examination, three levels of expertise and their relative sets of skills, have been identified: basic, intermediate, and advanced. Since 2001 more than 1000 clinicians have attended the basic level (32 hours of theoretical course followed by 80 hours of practical training), and intermediate and advanced levels have been regularly held every two years.

Furthermore, to complete the training of hospital doctors and to keep them updated on the principal innovations in this field we decided to implement, in our Journal, a series of diagnostic echographic cases and some living brief reviews providing practical suggestions to improve the quality of bedside ultrasound examinations.

References

1. Cioni G, Bellandi G, Bertolini S, et al. A multisystem approach by bed-side ultrasound in patients with COVID-19 infection: a case series. *Ital J Med* 2020;14:106-11.
2. Cioni G. The usefulness of point-of-care ultrasound in the atypical presentation of aortic dissection: a case series and brief review of literature. *Ital J Med* 2021;15:107-10.
3. Mumoli N, Vitale J, Pagnamenta A, et al. Bedside Abdominal Ultrasound in Evaluating Nasogastric Tube Placement: A Multicenter, Prospective, Cohort Study. *Chest* 2021;159:2366-72.
4. Mumoli N, Vitale J, Cocciolo M, et al. Accuracy of nurse-performed compression ultrasonography in the diagnosis of proximal symptomatic deep vein thrombosis: a prospective cohort study. *J Thromb Haemost* 2014;12:430-5.
5. Nardi R, Mathieu G, Berti F, et al. Evaluation models and items of clinical competence for the hospital physicians in internal medicine. *Ital J Med* 2011;5:1-84.