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Letter to the Editor

Getting out of the comfort zone with point-of-care ultrasound

I read with great interest the article by Steinemann and Fernandez about the use of FAST exams in trauma centers.[1] It is indeed an interesting analysis of the application of point-of-care ultrasound in different scenarios and healthcare services. Among the various results reported, I want to add further comments regarding the indications of FAST and point-of-care ultrasound education.

As the authors stated, FAST has shown several advantages in the assessment of trauma patients. The majority of the studies include blunt trauma patients, as the role of FAST in penetrating trauma is still controversial.[2] This is further supported by the traditional operative management of penetrating abdominal injuries. However, more recently, some authors investigated whether FAST could enhance quality of care of those patients. Potential benefits of point-of-care ultrasound must be highlighted in two particular situations.

Since observations of non-therapeutic laparotomies in penetrating trauma patients, clinicians persue predictors of visceral injuries requiring operative repair. Prospective trials have shown that FAST can predict the need for surgical exploration with a positive predictive value of 90–92%, while negative results do not exclude the presence of intraabdominal injuries.[3–5] Similar findings were shown more recently in unstable patients with thoracoabdominal injuries, leading to the conclusion that "FAST should become an integral part of management algorithm in unstable patients with penetrating thoracoabdominal injury".[6] Nevertheless, lack of sensitivity remains a major issue regarding FAST in penetrating trauma patients. Hence, the question whether FAST can exclude intraperitoneal penetration and visceral injuries still persist. To address that issue, Bokhari et al. proposed the adjunct use of ultrasound to evaluate edema of the deep muscular layers around the penetrating wound.[7] The authors found sensitivity and negative predictive value to be both 100%, yielding no false-negative results. These results support a novel and particular use of bedside ultrasound which is seldom discussed or applied routinely. They emphasized the screening ability of the ultrasound in such patients and the potential benefit of avoiding unnecessary tests and interventions. Another interesting utility of ultrasound is the potential to identify diaphragmatic injuries. Current non-invasive diagnostic modalities show poor performance when analyzing these injuries, with up to 50% of false-negative results.[8] As a real-time diagnostic modality, ultrasound may arise as a novel alternative when managing injuries to the thoracoabdominal area.[9] Nevertheless, larger studies need to be conducted to confirm this hypothesis.

The other aspect that must be highlighted is sonographic education. Paradoxically, as mentioned in the article from Steinemann and Fernandez, ultrasound teaching is lacking despite being the most wanted for a skills course. As ultrasound is becoming "the new stethoscope",[10] nowadays undergraduates shall be more exposed to this technology when compared to their predecessors. Meanwhile, the American Academy of Emergency Medicine already advocates ultrasound teaching in early medical education.[11] A study evaluating undergraduate learning skills with FAST demonstrated accuracy of 88% in free fluid detection.[12] Moreover, in the same study, students reported benefits in learning abdominal radiological anatomy and the need for further training during the undergraduate course. Other studies show similar encouraging results.[13,14] However, despite being able to demonstrate knowledge acquisition, evaluation of knowledge retention by the students in longer terms is lacking. Convincing results addressing this issue may play an important role in the definitive incorporation of the subject in the curriculum. Hence, knowledge retention should be aimed in further studies.

In conclusion, point-of-care ultrasound is an invaluable tool in trauma and its full potential is yet to be incorporated as standard of care. The surgical community should make every effort to propagate ultrasound knowledge among doctors and undergraduates. Getting out of the comfort zone is the cornerstone to spread knowledge and enhance quality of care.

Conflict of interest

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