OPINION

Is it time to consider liver ultrasound and elastography training for advanced hepatology trainees in the UK?

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Received 26 June 2019

Revised 29 August 2019

Accepted 17 September 2019

Published Online First

31 October 2019

Ultrasound (US) is undoubtedly an important modality for diagnosing a wide range of gastrointestinal and liver conditions. In addition, recently introduced non-invasive liver assessment techniques, particularly US-based modalities such as elastography and contrast-enhanced US, have resulted in a dramatic shift in the management of patients with chronic liver disease by allowing rapid and accurate assessment of hepatic fibrosis and liver lesions.¹ Although these techniques are used by clinicians in many European countries where abdominal US is recognised as one of the skills to be developed by hepatologists, this opportunity appears to be disregarded in the UK where gastroenterology and hepatology trainees do not receive any formal US training. The training resources in this important clinical area are limited to short courses organised by a small number of institutions. However, although these courses provide the basic theoretical and practical knowledge in US and non-invasive liver assessment, there are no ongoing opportunities for trainees to practise and improve their skills continuously in the workplace, with interested trainees only left to seek further training opportunities individually in their spare time. Without dedicated training slots, competing endoscopy requirements and the current clinical workload in the National Health Service (NHS), US training is virtually impossible. However, despite all of that, the liver US courses still seem to be well attended with many gastroenterology trainees showing interest in learning US and elastography techniques. More interestingly, a survey published 20 years ago confirmed that the

majority of UK Gastroenterology trainees were interested in US training with a focus on hepatobiliary conditions but it is unclear what happened to this proposal.²

WHY LIVER US AND ELASTOGRAPHY TRAINING?

In many European countries, formal abdominal US training is considered to be a necessary part of the gastroenterology training curriculum. Training in US and its use in invasive procedures requiring US guidance has been part of the European Board of Gastroenterology for years.³ Moreover, there is a growing recognition among Hepatologists in Europe of the importance of training in this field with the European Association for the Study of the Liver (EASL) choosing 'Abdominal Sonography' as the theme of its annual clinical school last year (2018). There is also sufficient evidence in the educational literature to support the benefits of teaching students and trainees the use of 'one stop' or focused point-of-care US (PoCUS) in various medical disciplines.⁴ It has been shown that teaching trainees the skills of using focused US assessment in practice through the use of portable point-of-care machines could be linked to better patient care outcomes.⁵ A good example of non-emergency US training in the UK is the model implemented by the Royal College of Obstetricians and Gynaecologists (RCOG) in 2010. The successful launch of this compulsory competency-based US training module for obstetrics and gynaecology trainees was achieved through engaging the Society and College of Radiographers and the British Medical Ultrasound Society as well

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To cite: Hashim A, Rosselli M. *Frontline Gastroenterology* 2020;**11**:410–412.

as the introduction of Deanery Ultrasound Co-ordinators and local Trust Ultrasound Education Supervisors to oversee the training process. It is indeed an experience that we can learn a lot from in Gastroenterology.⁶ There is also arguably a general need for more health personnel to be trained on US, given the increasing national demands with many radiology departments having a waiting list for abdominal US examinations.

Additionally, beyond the interest and the fascinating aspects of medical US in general, if we take a deeper look at the application of clinical US to medical practice in Hepatology, then we find an answer as to why it is so important to include it in gastroenterology training. Indeed, the clinical examination could be integrated and extended to overview anatomy, physiology and pathology, and through elastography technically “palpate” by measuring the stiffness of the liver and spleen which are recognised as being surrogate markers of fibrosis and portal hypertension, the latter being one of the most important clinical endpoints in liver disease. This would lead to reducing the number of liver biopsies and unnecessary endoscopies.^{7,8} The clinical background of hepatologists would be of undeniable benefit in interpreting real-time images and elastography assessments leading to more rapid diagnosis, better clinical decision-making and improvement of the whole patient care pathway. Along these lines, hepatologists would be called to not only gather and integrate the information obtained from multiple different assessments but to be directly involved in the practical aspects of the diagnostic process. Nevertheless, the objective of using US in clinical practice is not to over-ride radiologists or sonographers, but to learn how to use US to improve the understanding of liver disease. Given the reasons above, one can conclude that it is time to seriously consider giving UK gastroenterology trainees, particularly those with an interest in Hepatobiliary medicine, the opportunity to receive formal training in focused liver US and elastography, at least as an optional module.

THE BIG HURDLES AND POTENTIAL WAYS OF OVERCOMING THEM

Indeed this proposal does not come without significant challenges. In fact, US is extremely operator dependent, requiring high-quality training and the development of specific skills. Moreover, depending on US reports, important clinical decisions are taken and a patient's pathway might change accordingly. Misleading information could threaten a patient's health, raising clinical governance issues. Hence, the highest standards of training must be guaranteed. In the UK, Abdominal and more specifically liver US are performed by radiologists and sonographers who have made a profession out of this, potentially raising a conflict of interest would they be involved in training supervision. Moreover, since consultant radiologists are involved in training radiology registrars, it would

be difficult for them to find a dedicated time to fulfil the training requirements of hepatology registrars on top of their commitments. At present, the UK gastroenterology training programme would not allow the time required for adequate US training unless it was reorganised according to different training needs. Another issue is that, although elastography, that is now recognised by the European Federation of Societies for Ultrasound in Medicine and Biology (EFSUMB) and EASL guidelines for the purpose of grading fibrosis non-invasively⁹ and has a primary role in the management of patients with liver disease, it is rarely performed by clinicians in the UK but rather by technicians and specialist nurses. More sophisticated software such as shear-wave elastography is now built into new-generation US machines and can be used to produce reliable information in a timely manner.⁹ Nonetheless, this equipment is available in very few centres only. In addition, a clinical service that is part of a reliable radiology department, especially with senior clinical consultants who will likely not be involved in the new training process, might be less flexible and not so open to this innovation which surely will need time for its establishment.

While one might view the recently introduced “Shape of Training”, which underscores the need for more “generalist” doctors who are capable of providing general care in broad specialties across a range of different settings as another hurdle, the same proposal acknowledges and confirms that training in more specialised areas to meet local patient and workforce needs is also required.¹⁰ It also emphasises on flexible training and indeed the Interim NHS People Plan which was developed by NHS improvement calls for flexible training through a “step-in, step-out” post-graduate medical training model.¹¹ This in turn can facilitate career development opportunities on focused areas and can be utilised for undertaking Liver US and elastography training.

One way to overcome these hurdles is by limiting the US training initially to advanced hepatology trainees through an optional module. There is only a small number of advanced hepatology trainees in the UK (around 14) every year and all of them rotate in level-three Hepatology centres where there is usually good sonography expertise and availability of shear-wave elastography devices to some degree. It should also be mentioned that colonoscopy has become non-mandatory in the updated UK Gastroenterology curriculum, with many trainees dropping their colonoscopy training to focus on developing advanced Hepatology skills through liver transplantation rotations. Hence, advanced hepatology trainees who are not interested in achieving colonoscopy competencies might wish to gain skills in the field of liver US and elastography which is more relevant to their future sub-specialty career. There are also discussions within the Shape of Training scheme on moving optional training areas to

post completion of training which could represent an alternative pathway.

THE WAY FORWARD

Ultimately, considering the complexity of this new potential training pathway, the introduction of an optional training module on liver US and elastography should be undertaken gradually in three phases. A needs assessment period is required initially to establish feasibility, cost and potential patient benefits through a nationwide trainee survey as well as consultations with gastroenterology programme directors and radiologists. This will facilitate the identification of the specific skills and competences required by trainees to complete the proposed module. It will also help in addressing any concerns raised by radiologists and improve their engagement with the proposed training pathway. The initial phase should be followed by a pilot phase of delivering US training to advanced hepatology trainees in selected centres which have both the interest and suitable logistics. A basic skills US course could be organised and made compulsory for achieving independence in a similar way to the Joint Advisory Group endoscopy certification. Provided the outcomes of these two phases are successful, full incorporation into the curriculum would be expected.

Finally, the innovation which lies behind this new training proposal is difficult but necessary, not only because it will improve the knowledge of liver disease which can be seen as part of clinical scientific progress but, more importantly, because it will contribute to improving patient care.

Contributors Both authors (AH and MR) contributed to the writing of this manuscript and the subsequent revisions.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

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