Acute medical ultrasound for medical students and doctors in training: the future is echogenic

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Background
An increasing number of guidelines recommend the use of ultrasound as a near patient test to aid diagnosis and management. Whilst teaching of ultrasonography is common in many universities in continental Europe, in the United Kingdom it is rarely taught at undergraduate level.

Methods
As part of a KSS Deanery Leadership module, a business case successfully procured a hand held ultrasound device (VScan®) for the AMU to develop basic ultrasound teaching for final year medical students and doctors in training.

A user-group survey was first prepared to assure interest in ultrasound teaching at student and junior doctor level.

The teaching programme over 1.5 hours included ultrasound theory, interpretation of ultrasound images and hands-on experience.

Another survey was prepared to test knowledge and recognition of ultrasound pathologies 2-4 week after the teaching session, which included seven Multiple Choice picture tests. The same survey was given to Acute Medicine and Care of the Elderly consultants who were used as a “Control” group (n=15).

Results
The user group survey (n=29) showed that 96% of medical students and doctors in training were ‘very’ interested in basic ultrasound teaching and 92% rated a hands-on session as very important. Chart1 shows the interest in different topics of ultrasound.

After four initial sessions 20 participants were trained. 95% of participants rated the sessions as ‘excellent’ and 61% were encouraged to seek further formal training. A post training teaching Survey conducted after 2 to 4 weeks found 95% of participants rated the sessions as very important. Chart 1 shows ultrasound teaching and 92% rated a hands-on session as very important. Chart 1 shows the interest in different topics of ultrasound.

Conclusion
The delivery of basic ultrasound training was well received by medical students and trainees with evidence of improved knowledge. With increased reliance on ultrasound technology as a near patient test, wider training at the undergraduate level and within foundation years is likely to enrich the trainees experience and should be considered for curricula development in the United Kingdom.

References

Chart 1: Interest in different topics of User group survey

Multiple Choice Questions
1. Regarding ultrasound waves, what describes best the relationship between frequency, resolution and maximal depth?
   a: the higher the frequency the better the resolution and the higher your maximal depth
   b: the lower the frequency the higher the resolution and the lower your maximal depth
   c: the higher the frequency the better the resolution and the lower your maximal depth
   d: the lower the frequency the lower the resolution and the lower your maximal depth

   Post - teaching Survey: 80%
   “Control” Group: 60%

2. Which ultrasound probe would you choose for vascular access?
   a: a
   b: b
   c: c
   d: d

   Post - teaching Survey: 80%
   “Control” Group: 60%

3. What does the following picture show?
   a: pleural effusion
   b: pericardial effusion
   c: Hydronephrosis
   d: fluid in between liver and kidney
   e: abdominal aortic aneurysm

   Post - teaching Survey: 80%
   “Control” Group: 80%

4. What does the following picture show?
   a: pleural effusion
   b: pericardial effusion
   c: Hydronephrosis
   d: fluid in between liver and kidney
   e: abdominal aortic aneurysm

   Post - teaching Survey: 85%
   “Control” Group: 73%

5. What does the following picture show?
   a: pleural effusion
   b: pericardial effusion
   c: Hydronephrosis
   d: fluid in between liver and kidney
   e: abdominal aortic aneurysm

   Post - teaching Survey: 80%
   “Control” Group: 80%

6. What does the following picture show?
   a: pleural effusion
   b: pericardial effusion
   c: Hydronephrosis
   d: fluid in between liver and kidney
   e: abdominal aortic aneurysm

   Post - teaching Survey: 80%
   “Control” Group: 80%

7. What does the following picture show?
   a: pleural effusion
   b: pericardial effusion
   c: Hydronephrosis
   d: fluid in between liver and kidney
   e: abdominal aortic aneurysm

   Post - teaching Survey: 80%
   “Control” Group: 73%