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EDITORIAL

The golden age of ultrasound is only just beginning

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In the last 10 years, many intensivists have learned that using ultrasound in their daily practice leads to faster diagnosis and safer patient care.[1,2] Many algorithms have been developed for the structured approach of the care of an unstable patient. Examples of these algorithms are RACE (Rapid Assessment with Cardiac Echo), FATE (Focus Assessed Transthoracic Echo), FAST (Focussed Assessment with Sonography in Trauma), and BLUE (ultrasound of the lung in a cyanotic patient without a history of pulmonary disease). Nowadays, diagnostic ultrasound performed by intensivists is usually called POCUS (Point of Care UltraSound). What exactly is being covered in this acronym is, however, still being debated.

Ultrasound is also increasingly used during interventions such as central vein cannulation, insertion of arterial catheters and drainage of pleural or abdominal fluids. For example, in recent years it has been demonstrated that possible complications of central vein cannulation can be diagnosed with the use of ultrasound. If the guidewire is clearly visible within the vein and in the right atrium during insertion, if there is visible lung sliding and if turbulence of injected saline is seen in the right atrium after insertion of the catheter, performing an X-ray of the thorax after insertion of the catheter does not have additional value and can be safely omitted.[3-5]

We often wonder what our imaging routine would be like if X-ray and ultrasound technology were invented on the same day. We are convinced that, in that case, physicians would perform an ultrasound in many instances where now an X-ray is routinely ordered.

Ultrasound is not only a great diagnostic tool, but it is also tremendously useful in teaching. Young doctors get a much better appreciation of normal and abnormal anatomy. Taking in dynamic images of organs, arteries and veins with an ultrasound probe in their hands leads to an insight that cannot be obtained from anatomy books or post-mortem dissections. Ultrasound is also very useful for teaching physiological phenomena. Determining the flow pattern in an artery, vein or aortic outflow trajectory is helpful in understanding physiology.[6]

Often people warn about the risks of performing ultrasound without adequate training. The risk of a wrong diagnosis cannot be underestimated and we agree with these critics that adequate training is mandatory and should be part of every doctor's curriculum.[7] This is in line with the policy of the Dutch Society of Intensive Care with stimulates its members to follow not only a beginners course but also an advanced course.

We feel that the golden age of ultrasound is just beginning.

There are some developments that have led to more routine use of ultrasound in daily practice. The price of an ultrasound machine is decreasing; miniaturisation, digitalisation, connection of ultrasound equipment with the electronic health record through WiFi, etc., all lead to an everincreasing use. More and more doctors are being trained in the safe use of this technique and every day new applications are being developed.

In this issue,[8,9] the Netherlands Journal of Critical Care is starting an exciting new series on the use of ultrasound beyond the well-known indications of heart and lungs; some applications may be familiar to you, others may be completely new. We hope that you will find them instructive and that they may stimulate you to use ultrasound even more.

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