

European Federation of Societies for Ultrasound in Medicine and Biology



Ultrasound to fight against climate change and global warming

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2023 was globally the warmest year ever, and regionally also the wettest. Climate change is a fact and endangers our existence. As hospitals are like polluting cities, being healthcare professionals, we are partly responsible. Taking our responsibility, we should therefore advocate ultrasound over other radiological diagnostic methods because of its lower energy consumption.

MRI- and CT-scanners not only need more hospital surface and specially designed rooms, compared with ultrasound, MRI- and CT-scanners use a lot of energy [1]. Radiologic diagnostic equipment uses ca. 5% of the yearly hospital energy consumption: one MRI uses ca. €22.000 energy per year and one CT €4.500, while ultrasound consumes only ca. €450 energy per year [1]. Of course, in a hospital there are far more ultrasound machines than MRIs and

CTs. However, by doing more ultrasound and less MRI and CT, energy consumption could be significantly reduced.

What should we do?

Quality improvement of ultrasound machines together with increasing medical knowledge has significantly increased specificity and sensitivity in many clinical conditions, for example in the field of gastroenterology and hepatology. Patients with an increased risk for development of hepatocellular carcinoma should undergo risk-based surveillance [2]: Those who are high-risk will have MRI, but for the majority of patients ultrasound will do, albeit by somebody well trained [3]. In focal liver lesions contrast-enhanced ultrasound performs equivalent to both CT and MRI, suggesting that ultrasound examination can be first choice [4]. Also, in inflammatory bowel disease intestinal ultrasound can reliably replace endoscopy [5], and thereby also MRI or CT. In daily practice we should use MRI or CT only when there is a clinically relevant additional benefit; otherwise, we should restrict ourselves to ultrasound.

Most clinicians favor ultrasound anyway because of easy accessibility and high reliability. Its low energy consumption is amidst

climate change and global warming another important aspect to favor ultrasound over MRI or CT.

Finally, don't forget to turn off your equipment when the daily program is finished.

References

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