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Neonatal lung ultrasound guidelines

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In the past several years lung ultrasound (LUS) has become one of the most exciting applications in the field of the neonatal point-of care ultrasound (POC-US). Several recent articles have found ultrasound imaging to be an equal, if not a more effective diagnostic modality than X-ray. LUS is quicker, less expensive and it does not expose patients to the increased risks inherent in exposure to ionizing radiation. Aside from diagnosing specific lung diseases, ultrasound has shown a great promise in the functional monitoring of lung processes and predicting the development of complications. Neonatal LUS examination follows the same principles as adult ultrasound. As already mentioned, lung image map is created by interrogation of the pleural surfaces at three sites over each hemithorax. One of the challenges to widespread use of LUS is a paradigm shift in which physicians have to accept a fundamentally different way of thinking. Therefore, there is a need to develop creatively engaging strategies that would allow us this practice transition. Clinical guidelines modeled through decision-making algorithms have proven to simplify diagnostic and management processes. LUS algorithms or protocols have been described in the adult population. They cover vast amount of data and knowledge those are well validated and reproducible. On the other hand, no such algorithm exists for the neonatal population known to have relatively specific lung pathology. Acknowledging this fact, we reviewed neonatal LUS literature and developed neonatal LUS algorithms those serve as guidelines for LUS application in the neonatal population. The goal is to better help neonatologists to embrace the daily use of the ultrasound as a diagnostic modality. Further, the algorithms should allow neonatologists to transfer their insights and experiences into new research ideas and better patient outcomes..

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