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| **Feasibility of tele-ultrasound for remote examination of the chest: A systematic review** |
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| **Introduction/Aim:** Modern telecommunications have enabled transmission of real-time ultrasound images to a remotely-located device, termed tele-ultrasound. This allows an examiner at the patient’s bedside to obtain high quality images through guidance by an expert at a geographically separate location, who may then make immediate management decisions. The feasibility of this approach in assessing thoracic pathology is unknown. We performed a systematic review of the literature to determine whether tele-ultrasound is a feasible option to image the lungs and pleura.**Methods:** A systematic search for studies reporting feasibility outcomes from tele-ultrasound of the lungs and/or pleura in adults was performed in Medline, Embase, CINAHL and Cochrane Central (PROSPERO CRD42023463574). All study designs were of interest. At least two independent reviewers were involved in title/abstract screening, full text screening, data extraction and risk of bias assessment.**Results:** Out of 575 eligible studies, 66 progressed to full text screening and 32 studies were included for data extraction. Case series and small prospective studies were most prevalent (29/32). Assessment of thoracic tele-ultrasound was the primary focus in 14/32 studies; the rest included thoracic imaging as part of a broader systemic assessment. Feasibility was assessed by: 1. Identification of typical ultrasound features (11 studies), 2. Image quality as rated by a remote clinician (13 studies), 3. Remote clinician’s comfort in making management decisions (2 studies), or 4. Comparison to images acquired at the bedside by an expert sonographer (2 studies). Many studies incorporated more than one method and all concluded that tele-ultrasound was feasible. Risk of bias was assessed to be generally moderate-high using modified ROBINS-I and QUADAS-2 tools.**Conclusion:**The majority of studies supporting the feasibility of tele-ultrasound for the assessment of the thorax were of limited quality. The technology requires further study, as it has significant potential to improve ambulatory management of certain pulmonary and pleural pathologies.**Grant Support:** None.**Key words:** Ultrasound, telemedicine, tele-radiology, tele-ultrasound, eHealth |