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Summary of dissertation

Point-of-care Ultrasound and Dyspnea in the Emergency Department

Introduction

Dyspnea causes one in ten visits to the emergency department (ED), and half of the patients require hospitalization for 2 to 7 days. Discharge diagnoses commonly include 'Dyspnea - not otherwise specified', chronic obstructive pulmonary disease, pneumonia, heart failure, pulmonary embolism, and asthma. One out of twenty patients die during hospitalization, and one in ten dies within 30 days after discharge. Point-of-care ultrasound (POCUS) plays an increasing role in the initial diagnostic work-up of these patients and can help diagnose several of the common conditions causing dyspnea. Despite its everyday occurrence, surprisingly little is known about how the diagnostic work contributes to the health of the patients, and the adoption of POCUS, in this regard, tends to vary considerably between physicians.

HVAD VED VI?

Åndenød er en hyppig kontaktårsag i akutmodtagelser med betydelig morbiditet og mortalitet, og point-of-care ultralyd (POCUS) anvendes i stigende grad i den initiale diagnostik, om end evidensen primært er baseret på diagnostiske studier fremfor randomiserede forsøg.

Fact box (in Danish).

Aims

The studies in this PhD dissertation aimed to further understand whether a point-of-care ultrasound-driven diagnostic pathway compared to a usual diagnostic pathway improves and simplifies healthcare processes for emergency department patients with dyspnea.

Findings

Study I mapped the current evidence of point-of-care lung ultrasound in emergency medicine, with an emphasis on study designs and primary outcomes. Through systematic literature search, study selection, and extraction process, the key features of 406 relevant papers were displayed in an interactive online database. Overall, few randomized controlled trials had been conducted, and the majority of studies had primarily explored diagnostic accuracy research questions.

PERSPEKTIVERING

Resultaterne understøtter en fortsat, pragmatisk anvendelse af POCUS som supplement i udredningen af patienter med åndenød, med potentiale for mere effektiv diagnostik og ressourceanvendelse i danske akutmodtagelser.

Study II randomized 674 adult ED patients with dyspnea

Fact box (in Danish).

as chief complaint to either a POCUS-driven diagnostic pathway or a usual diagnostic pathway without in-ED focused lung and cardiac ultrasound. The intervention was not found to affect the hospital length of stay, including the primary outcome, alive and discharged within 24

hours. However, it reduced the utilization of chest X-rays and accelerated the physician's perceived diagnostic cer-

HVAD TILFØJER AFHANDLINGEN?

Afhandlingen viser, at en POCUS-drevet udredning ikke reducerer indlæggelsestid eller forbedrer tidlig udskrivelse, men kan mindske brugen af røntgen af thorax og øge den diagnostiske sikkerhed hos klinikerne.

Fact box (in Danish).

tainty.

Overall, the studies support and further justify POCUS's current role in the diagnostic workup of ED patients with dyspnea.

Conflicts of Interest

S.H. Ovesen reports lecture honoraria from the Danish Society for Ultrasound in General Practice; travel support from various emergency medicine and ultrasound societies (including WIN-FOCUS, EUSEM, IFEM, AGN, and DAFEM); DSMB membership for the HEAD-WISE trial; board positions at WINFOCUS and the Danish Medical Ultrasound Society; and an Associate Editor role at The Ultrasound Journal.

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