

Laursen CB, Sloth E, Lassen AT et al. Point-of-care ultrasonography in patients admitted with respiratory symptoms: a single-blind, randomised controlled trial. *Lancet Respir Med* 2014; 2, 638-646.

Point-of-care ultrasonography in patients admitted with respiratory symptoms: a single-blind, randomised controlled trial.

[Laursen CB](#)¹, [Sloth E](#)², [Lassen AT](#)³, [Christensen Rd](#)⁴, [Lambrechtsen J](#)⁵, [Madsen PH](#)⁶, [Henriksen DP](#)⁷, [Davidsen JR](#)⁵, [Rasmussen F](#)⁸.

Abstract

BACKGROUND:

When used with standard diagnostic testing, point-of-care ultrasonography might improve the proportion of patients admitted with respiratory symptoms who are correctly diagnosed 4 h after admission to the emergency department. We therefore assessed point-of-care ultrasonography of the heart, lungs, and deep veins in addition to the usual initial diagnostic testing in this patient population.

METHODS:

In a prospective, parallel-group trial in the emergency department at Odense University Hospital, Odense, Denmark, patients (≥ 18 years) with a respiratory rate of more than 20 per min, oxygen saturation of less than 95%, oxygen therapy, dyspnoea, cough, or chest pain were randomly assigned in a 1:1 ratio with a computer-generated list to a standard diagnostic strategy (control group) or to standard diagnostic tests supplemented with point-of-care ultrasonography of the heart, lungs, and deep veins (point-of-care ultrasonography group). The primary endpoint was the percentage of patients with a correct presumptive diagnosis 4 h after admission to the emergency department. Only the physicians doing the primary clinical assessment and the auditors were masked. Analyses were by intention to treat. The study is registered with ClinicalTrials.gov, number NCT01486394.

FINDINGS:

Between Dec 7, 2011, and March 15, 2013, 320 patients were randomly assigned to the control group (n=160) and point-of-care ultrasonography group (n=160). 158 patients in the point-of-care ultrasonography group and 157 in the control group were analysed. 4 h after admission to the emergency department, 139 patients (88.0%; 95% CI 82.8-93.1) in the point-of-care ultrasonography group versus 100 (63.7%; 56.1-71.3) in the control group had correct presumptive diagnoses ($p < 0.0001$). The absolute and relative effects were 24.3% (95% CI 15.0-33.1) and 1.38 (1.01-1.31), respectively. No adverse events were reported.

INTERPRETATION:

Point-of-care ultrasonography is a feasible, radiation free, diagnostic test, which alongside standard diagnostic tests is superior to standard diagnostic tests alone for establishing a correct diagnosis within 4 h. It should therefore be considered for routine use as part of the standard diagnostic tests in the emergency department for patients admitted with respiratory symptoms.

Comentario:

La importancia de este estudio radica en que se trata del primer ensayo clínico controlado en el que se compara, en un servicio de urgencias, el manejo de los enfermos con síntomas respiratorios con o sin ecografía a pie de cama.

Los investigadores aleatorizan a los enfermos que acuden a urgencias por problemas respiratorios en dos grupos: uno control con manejo habitual y otro en el que un médico con experiencia realiza una valoración ecográfica a pie de cama. Dentro del estudio ecográfico se incluía ecocardiografía y ecografía pulmonar y del sistema venoso profundo de las extremidades inferiores.

El objetivo primario era valorar la correcta orientación diagnóstica en las primeras 4 horas. Pues bien, en el grupo de pacientes que fueron valorados con ecografía a pie de cama, el porcentaje de orientación diagnóstica correcta fue significativamente superior que en el grupo control (88% vs 63,7%, respectivamente). Además, los pacientes que fueron evaluados mediante ecografía recibieron el tratamiento adecuado en un porcentaje también significativamente superior (78% vs 56,7%, respectivamente).

En este estudio se demuestra de forma fehaciente la gran utilidad de la ecografía a pie de cama en la orientación diagnóstica y terapéutica de los pacientes con patología respiratoria en el ámbito de urgencias.