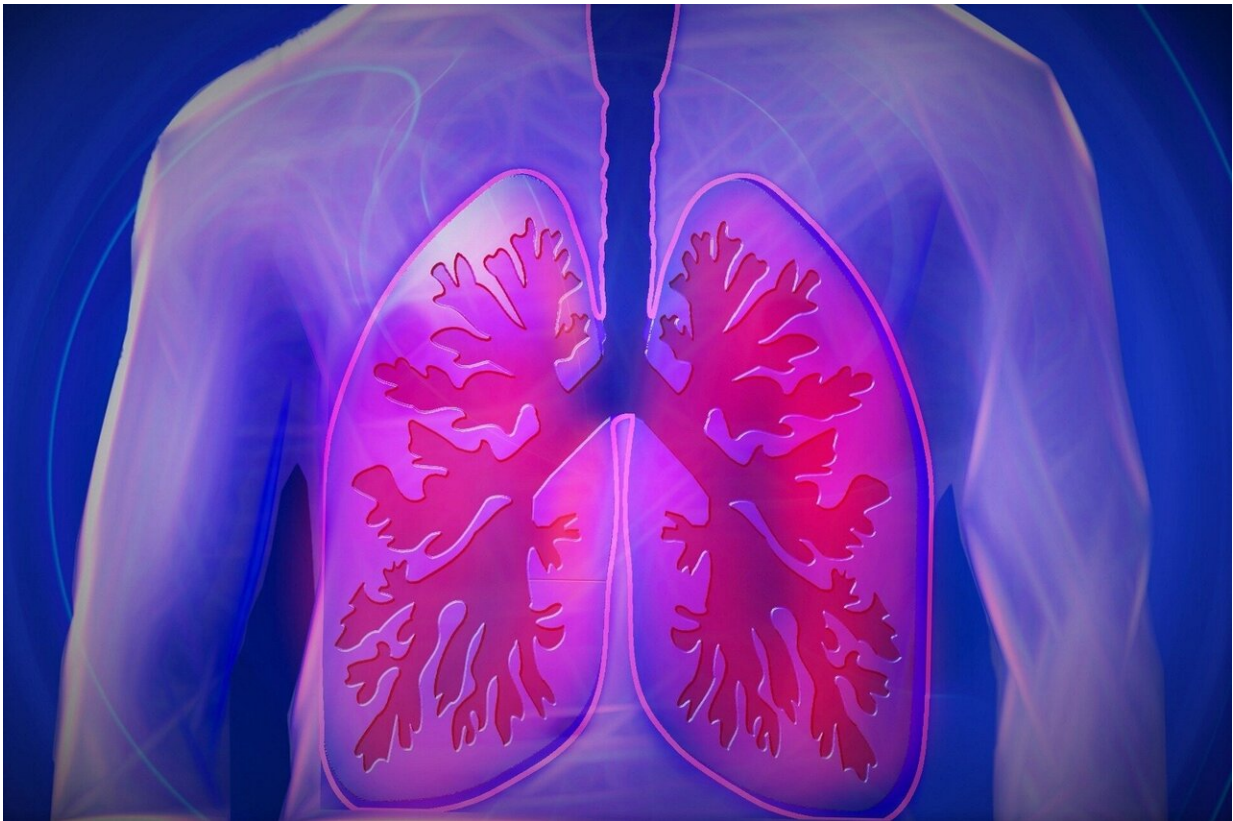


# Lung sonography is an useful guide to lung decongestion in HD patients at high CV risk

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Accumulation of water in the lungs (lung congestion) is a common condition in hemodialysis patients, particularly in those at high cardiovascular risk, like those presenting coronary artery disease and/or

heart failure. This alteration can be detected in an X-ray image, but cannot be heard easily with a stethoscope. When the congestion becomes so severe that fluid floods the alveoli ('alveolar pulmonary edema'), the sound of rattling breathing can be heard (and without a stethoscope at a later stage). Then, at the latest, pulmonary gas exchange is severely impaired, and the patients experience shortness of breath or even fear of death.

For [hemodialysis patients](#), especially, lung congestion is a strong risk factor for mortality. Between dialysis sessions, all fluid which patients introduce is retained. Severe overhydration may ensue and this can then lead to heart decompensation. The degree of lung congestion can be assessed by [ultrasound examination](#) (sonography), and this may be used to adjust fluid removal during hemodialysis and drug therapies.

An international, multicenter study in 363 patients investigated whether such an ultrasound-based approach improves patient outcomes. The primary endpoints were mortality, heart attack and decompensated heart failure. This strategy was compared with standard care in hemodialysis patients with a high cardiovascular risk.

The ultrasound examinations were carried out by the nephrologists themselves after brief instruction via a web platform. Sonographic control examinations were also performed periodically by cardiologists (blinded, i.e. without prior knowledge of the treatment that patients were receiving). The measurement parameters were B-lines in the ultrasound image, indicating [fluid](#) accumulation in [lung tissue](#). The target for hemodialysis management was less than 15 sonographic B-lines.

In the sonography group (n=183), the number of B-lines decreased from 15 to nine from the beginning to the end of the study; in the [control group](#) (n=180), however, the number increased from 16 to 30 (p=0.002). In the sonography group, 117 patients (78%) reached the target value (

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