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## Ultrasound to Detect Lung Congestion in Dialysis Patients May Help Save Lives

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Asymptomatic lung congestion increases dialysis patients' risks of dying prematurely or experiencing heart attacks or other cardiac events, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN). The study also found that using lung ultrasound to detect this congestion helps identify patients at risk.

Lung congestion due to fluid accumulation is highly prevalent among kidney failure patients on dialysis, but it often doesn't cause any symptoms. To see whether such asymptomatic congestion affects dialysis patients' health, Carmine Zoccali, MD (Ospedali Riuniti, Reggio Calabria, Italy) and his colleagues measured the degree of lung congestion in 392 dialysis patients by using a very simple and inexpensive technique: lung ultrasound.

Among the major findings:

- Lung ultrasound revealed very severe congestion in 14% of patients and moderate-to-severe lung congestion in 45% of patients.
- Among those with moderate-to-severe lung congestion, 71% were asymptomatic.
- Compared with those having mild or no congestion, those with very severe congestion had a 4.2-fold increased risk of dying and a 3.2-fold increased risk of experiencing heart attacks or other cardiac events over a two-year follow-up period.
- Asymptomatic lung congestion detected by lung ultrasound was a better predictor of patients' risk of dying prematurely or experiencing cardiac events than symptoms of heart failure.

The findings indicate that assessing subclinical pulmonary edema can help determine dialysis patients' prognoses. "More importantly, our findings generate the hypothesis that targeting subclinical pulmonary congestion may improve cardiovascular health and reduce risk from cardiovascular death in the dialysis population, a population at an extremely high risk," said Dr. Zoccali. Fluid in the lungs may be reduced with longer and/or more frequent dialysis.

Investigators will soon start a clinical trial that will incorporate lung fluid measurements by ultrasound and will test whether dialysis intensification in patients with asymptomatic lung congestion can prevent premature death and reduce the risk of heart failure and cardiac events.

Study co-authors include Claudia Torino, PhD, Rocco Tripepi, Giovanni Tripepi, PhD, Graziella D'Arrigo, PhD, Maurizio Postorino, MD, Luna Gargani, MD, Rosa Sicari, MD, Eugenio Picano, MD, PhD, and Francesca Mallamaci, MD, on behalf of the Lung US in CKD Working Group.

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