

RELAX-AHF: Poor diuretic response associated with worse clinical outcomes

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Poor diuretic response is associated with worse in-hospital and post-discharge clinical outcomes, results of the RELAX-AHF trial reveal. The study also found that serelaxin has a neutral effect on diuretic response.

These novel data from the RELAX-AHF trial were presented by lead author Professor Adriaan A. Voors at the Heart Failure Congress 2014, held 17-20 May in Athens, Greece. The Congress is the main annual meeting of the Heart Failure Association of the European Society of Cardiology.

RELAX-AHF was a double blind, placebo-controlled trial of 1161 [patients](#) admitted to hospital with acute [heart failure](#). Patients were randomised to receive 48-hour infusions of placebo or serelaxin (30µg/kg per day) within 16 hours from presentation. Primary analysis of the study showed that serelaxin reduced dyspnoea and decreased 180 day mortality.¹

The current substudy, presented for the first time today, had two aims. The first was to confirm preliminary findings of the PROTECT trial, which found that poor diuretic response is a serious clinical problem.² The second was to investigate whether the beneficial effects of serelaxin discovered in the primary analysis were related to improvement of the diuretic response.

Diuretic response was defined as kilograms of weight loss per 40mg of the loop diuretic furosemide. Professor Voors said: "Congestion is the main problem in patients with acute decompensated heart failure and we give them loop diuretics to get rid of the excess fluid. Patients who respond to the loop diuretic have diuresis and lose weight. But a substantial proportion do not respond to the diuretic, do not diurese and do not lose weight."

He added: "Diuretic response could be measured by urinary output but when patients no longer need

a catheter it is difficult to capture how much fluid they have lost. We therefore used [weight loss](#) as a more objective and reliable measurement of diuretic response. The more weight patients lost per mg of furosemide given, the better their diuretic response."

The study found that diuretic response was an important clinical problem, confirming preliminary results from the PROTECT trial. Patients with a poor diuretic response had less dyspnoea relief ($p=0.0001$) and a higher risk of cardiovascular death or rehospitalisation for heart failure or renal failure through day 60 (p

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