

# Pacemaker could help more heart failure patients

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(Medical Xpress)—A new study from Karolinska Institutet demonstrates that a change in the ECG wave called the QRS prolongation is associated with a higher rate of heart-failure mortality. According to the team that carried out the study, which is published in the scientific periodical *The European Heart Journal*, the discovery suggests that more heart-failure cases than the most serious could be helped by pacemakers.

[Heart failure](#), which takes a multitude of forms, is one of the most common causes of hospitalisation and death in the West. While there are several effective treatments for weakened [cardiac muscle](#) contractility, there is as yet no tried and tested method for treating the reduced ability of the heart muscles to relax.

In the present study, a team comprising researchers at Karolinska Institutet, Linköping University, Stockholm South General (Söder) Hospital and Karolinska University Hospital identified these two types of heart failure using data from the Swedish Heart Failure Registry. Their results show that a particular change in the ECG wave (which reflects the hearts [electrical activity](#)) is associated with a higher mortality rate amongst [patients with heart failure](#). The anomaly, called the QRS prolongation (QRS being the characteristic peak-trough deflections of the ECG), indicates that the left and right sides of the heart are not cooperating as they should.

One way to treat the weakened cooperation that the QRS prolongation indicates is to insert a heart failure [pacemaker](#), an advanced type of the

device that sends signals to both the left and right sides of the heart. However, such a pacemaker is only used in the most severe cases. The researchers believe their study suggests that patients with milder forms of this type of heart failure can also be treated with a pacemaker.

"This advanced pacemaker has not yet been tried on heart failure caused by a reduced ability of the heart muscles to relax," says principal investigator docent Lars Lund. "However, our results indicate that it could be valuable for this type of heart failure too, and this possibility is something that we must now go on to explore."

**More information:** Lars H Lund, et al. Prevalence, Correlates and Prognostic Significance of QRS Prolongation in Heart Failure with Reduced and Preserved Ejection Fraction. *European Heart Journal*, online publication 5 October 2012.

Provided by Karolinska Institutet

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