Peri-infarct pacing does not improve outcomes in patients with large myocardial infarction

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In patients with a large myocardical infarction (MI), pacing, with the left ventricular (LV) lead placed in the area of the lesion (peri-infarct) did not prevent further enlargement of the heart (remodeling), nor did it improve functional or clinical outcomes after 18 months, according to results of the Pacing Remodeling Prevention Therapy trial (PRomPT) trial.

In MI patients with large infarcts, medical therapy and rapid restoration of blood flow to the area is not always enough to prevent cardiac remodeling.

One reason for remodeling may be the response of the weakened area of the heart to a redistribution of stress and workload caused by the heart attack.

The principal objective of the PRomPT trial was to investigate whether pacing, which coordinates the heart's contractions and can reduce workload to the damaged area, might prevent post-MI remodeling if the LV lead is placed in the peri-infarct area of most damage.

The findings, presented as a Hot Line at ESC Congress 2015 and published simultaneously in the *European Heart Journal* (to be confirmed) likely signal a turning point in efforts to prevent post-MI remodeling, said the study's lead investigator, Gregg. W. Stone, MD.

"The results of this trial are sufficiently neutral such that future studies will most likely not explore peri-infarct LV pacing to improve outcomes for patients with large MI," noted Dr. Stone, from New York-Presbyterian Hospital/Columbia University Medical Center and Cardiovascular Research Foundation in New York.

The PRomPT trial was a prospective, multicenter, controlled study in which 126 patients with recent large MI were randomized to a non-pacing control group (n=45), or groups with either biventricular pacing (n=41), or LV peri-infarct pacing (n=40) as determined by 2D echocardiography.

A cardiac resynchronization therapy device (CRT-D) device with left and right ventricular leads was implanted in both pacing groups within 10 days of their MI. Subjects in the biventricular pacing group were paced from both LV and RV leads, while those in the LV pacing group were paced from the LV lead only.

No device was implanted in control group patients.

The study showed no significant difference between the pooled pacing groups and control group in the primary endpoint, which was change in LV end-diastolic volume (LVEDV) from baseline to 18 months.

LVEDV increased by 15.3 mL in the control group and 16.7 mL in the pacing groups during follow-up (p=0.92).

There were also no significant differences between the groups in the change in LVEDV or ejection fraction over time.

The neutral effects of pacing were also reflected in similar outcomes between groups in quality of life measures and exercise performance, as well as mortality and heart failure hospitalisation outcomes, noted Dr.

Stone.

"Despite a sound hypothesis PromPT was unable to demonstrate a beneficial effect of pacing in patients with a large MI," he concluded. "Other strategies are desperately needed to improve the prognosis for these high-risk patients, and numerous pharmacologic and device-based approaches are being studied for this purpose."

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