- I'm Pugal Vijayaraman from Geisinger Health System in Wilkes-Barre, Pennsylvania and I'm presenting on clinical outcomes of conduction system pacing versus biventricular pacing in patients with reduced left ventricular ejection fraction.

Aim of this study

So the aim of this study was to assess the clinical outcomes of conduction system pacing while compared to traditional biventricular pacing in patients who need cardiac resynchronization therapy. Currently biventricular pacing has a 30 to 40% non-response rate, our goal was to see if conduction system can improve those outcomes in this population.

Patient population and study design

This is a retrospective observational two centre study. We included patients from both Geisinger health system, which is in Pennsylvania and Rush University health system in Chicago, Illinois and we took all patients who underwent cardiac resynchronization therapy, whether it's biventricular pacing or conduction system pacing and then compare the clinical outcomes between the two groups in terms of death or heart failure hospitalisation as the primary endpoint. And then we also looked at individual outcomes of death and individual outcome for heart failure, hospitalisation and specifically looked at those outcomes again in patients with only left bundle branch block.

Outcomes

Yeah, we found very interesting observations from this two centre study. The incidence of death heart to failure hospitalisation was significantly reduced in patients who undergo conduction system pacing compared to biventricular pacing in this large study of 477 patients almost equal number of patients in both groups. And when we looked at the specific subpopulation of patients with left bundle branch block, this outcome difference was even further magnified, these are the patients that benefit the most with cardiac resynchronization therapy and conduction system pacing performs significantly better. In most of these differences came from a reduction in heart failure hospitalisation while there was a trend towards improvement in mortality in this subgroup of patients. More importantly, when we looked at the echocardiographic outcomes, the number of patients who had LV ejection fraction improvement was significantly higher, about 80% in the left bundle branch block in the conduction system pacing group compared to 60% in the biventricular pacing group. The average improvement in LV ejection fraction was 6% in the biventricular pacing group, which is similar to what has been seen in randomised clinical trials while the conduction system pacing resulted in about 12 to 14% improvement in LV ejection fraction.

Clinical implications

So the result of this study indicate two things, number one, this is primarily an observational study so it's hypothesis provocating but we have been struggling with non-response to biventricular pacing in a significant population in those who undergo biventricular pacing. This gives us an opportunity to improve already good outcomes with biventricular pacing to a much greater degree if you perform conduction system pacing. And so this opens new doors, new avenues for improving clinical outcomes in patients with heart failure and reduced ejection fraction.

Further study required

Yeah, so again, as we talked about, this is primarily an observational retrospective study and these findings have to be confirmed in a randomised clinical trial. So we are looking at opportunities to run a randomised clinical trial, there are several pilot trials ongoing and part of a single centre randomised trial of one-hundred patients that gives us the next step momentum to design a much larger randomised clinical trial that would elevate conduction system pacing as a first line therapy for patients with heart failure and need for resynchronization therapy.