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Modulation Therapy in Patients with Amyloid Cardiomyopathy

Alves Ayadi*

Department of Cardiology, University of Calgary, Canada, USA

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An aggressive form of heart failure (HF) can arise from cardiac amyloidosis. In patients with symptomatic HF, cardiac contractility modulation (CCM) has been demonstrated to be a practical therapeutic option; however, there is no evidence of its application in patients with cardiac amyloidosis. We discuss the case of TTR amyloidosis, in which CCM therapy was successful. Due to an established diagnosis of wild type TTR-Amyloidosis with significant cardiac involvement, the patient had a history of multiple HF hospitalizations. It was decided to pursue CCM therapy device implantation because he was extremely symptomatic, with the exception of during continuous dobutamine and diuretic infusion. An increase in EF, functional status (the 6-minute walk test improved from zero meters at baseline to 270 meters at one month and 460 meters at twelve months), and a decrease in pulmonary pressures were all noted at follow-up. There was no need for another HF hospital admission one year after the device was inserted. In this challenging clinical setting, CCM therapy might work well. The AMY-CCM Registry, which just started, will look at how well CCM works for people with heart failure and TTR amyloidosis. This will give new evidence about how it might work as a treatment option.

Amyloidogenic proteins, such as immunoglobulin light chain proteins (AL) or transthyretin proteins (TTR), aggregate in numerous cardiac structures, resulting in various types of amyloidosis, are the primary cause of cardiac amyloidosis. It could lead to aggressive heart failure (HF). Other therapeutic options that have the potential to work together in this clinical setting ought to be tested in addition to the studies that are currently being conducted. Patients with symptomatic HF despite optimal medical therapy (OMT), with an Ejection Fraction (EF) between 25% and 45%, and without an indication for cardiac resynchronization therapy (CRT) may benefit from cardiac contractility modulation (CCM) therapy, according to randomized clinical trials. We discuss a patient with TTR amyloidosis for whom CCM therapy was successful. The idea to create a registry to investigate the effectiveness of CCM in cardiac amyloidosis came from our review of the biophysics and molecular biology mechanisms that underlie CCM function [1,2].

Keywords: Amyloid cardiomyopathy; Amyloidogenic proteins; Cardiac contractility modulation

References

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***Corresponding author:** Alves Ayadi, Department of Cardiology, University of Calgary, Canada, USA, Tel: +9136578629; E-mail: ayadialves39@gmail.com

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