# CRT consensus set to standardize and improve care for patients worldwide

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Recommendations for the practical management of CRT patients have been set out for the first time in an international consensus statement on cardiac resynchronization therapy (CRT) in heart failure.

The 2012 Expert Consensus Statement on Cardiac Resynchronization Therapy (CRT) in Heart Failure: Implant and Follow-up Recommendations and Management was developed by the European Heart Rhythm Association (EHRA), a registered branch of the European Society of Cardiology (ESC), and the Heart Rhythm Society (HRS) in the US, and will be published in their respective journals, *EP Europace* and *HeartRhythm*.

CRT was developed 20 years ago in Europe and the United States and has reached maturity as a major heart failure therapy. The therapy has risen in popularity, with more than 200,000 devices implanted worldwide last year and more than one million over the last 10 years.

The clinical indications for CRT are clearly outlined in the 2007 ESC guidelines, which were updated in 2010, and US guidelines from 2008. These guidelines are supported by robust evidence from randomised clinical trials.

This consensus statement is particularly unique because it incorporates expert consensus from Europe and North America.

"We have very strong recommendations regarding clinical indications

based on the clinical evidence and these are covered in multiple guidelines," said Professor Jean-Claude Daubert, joint task force co-chair and Professor of Cardiology and Vascular Diseases, University of Rennes 1, France. "CRT therapy improves symptoms, cardiac function, hospitalization rates and mortality in a broad range of patients with heart failure."

He added: "On the contrary, until now we did not have a consensual document on the practical aspects of this therapy. Our goal was to establish a consensus statement on how to manage CRT patients before, during and after the implantation procedure. We do not discuss clinical indications."

"In this document we attempted to fill in the gaps in clinical evidence and provide practical recommendations for the evaluation and management of the CRT patient that could be applied to patients implanted anywhere in the world," said Dr Leslie Saxon, US joint task force co-chair and Chief, Division of Cardiovascular Medicine, University of Southern California.

While there are some randomised trials on specific practical aspects of CRT, there was a lack of solid clinical evidence for all aspects of management. For this reason, experts from both sides of the Atlantic teamed up to establish a clinical consensus on how to manage the CRT patient.

The document is in six sections:

## Pre-implant evaluation

Includes recommendations on how to manage patients just before CRT implantation. This section focuses on potential temporary contraindications to the intervention, and how to manage medications,

particularly anticoagulants and antibiotics, just before and during the implantation procedure. Professor Daubert said: "There was no consensus before on these very particular aspects."

## CRT implantation

How to implant the CRT device. This section describes all steps of the procedure such as anaesthesia, lead implant sequence, left ventricular lead placement and defibrillation testing. "This is, to my knowledge, the first attempt to write a consensus definition of the optimal way to implant a CRT device," said Professor Daubert. "We make recommendations on all the technical aspects of the implantation procedure."

## Pre-discharge evaluation and device programming

Includes how to recognise and handle acute complications, initial programming of the device just after the operation and before hospital discharge, and atrioventricular (AV) and ventriculoventricular (VV) optimization. "This is the first time we have a consensus on the optimal programming of the CRT device just after the operation," said Professor Daubert.

## CRT follow-up

This section outlines how follow-up should be organised and what assessments should be made. The complementary role of remote monitoring is discussed, with a special focus on how remote hemodynamic monitoring can be used. The need for strong cooperation between the heart failure specialist and the electrophysiologist (EP) is stressed. "We have to keep in mind that the CRT patient is primarily a heart failure patient," said Professor Daubert. "Follow-up has to concern

not only the technical follow-up of the device, but also – and primarily – the heart failure status of the patient. It is essential to optimise the heart failure management of the patient."

## Response to CRT management of the non-responder

Discusses how to assess the response to CRT and how to manage non-responders. The document recommends that a systematic assessment should be conducted to identify and treat reversible causes of non-response.

## Special considerations

Includes recommendations for the management of CRT in particular situations such as patients with atrial fibrillation and patients on renal dialysis. Also discussed are how to choose between the two types of device – resynchronization alone or resynchronization plus defibrillation – and the relative advantages and disadvantages of each. And finally, issues related to end of life, patient education and engagement, and cost effectiveness are considered.

Professor Daubert concluded: "This is the first consensus statement on all of the practical aspects involved in managing CRT patients throughout their entire journey on CRT therapy. We hope it will be useful in the clinical practice of physicians all over the world who use this type of therapy, including heart failure specialists who refer and follow patients and EP specialists who implant the device and follow patients."

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