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Sudden Cardiac Death Prevention: ICD Indications

HOW CAN WE PREVENT SUDDEN CARDIAC DEATH IN PATIENTS WITH ADVANCED HEART FAILURE, THE USE OF ICDS?

You are listening to ReachMD XM157, The channel for medical professionals. Welcome to Clinician's Roundtable. I am Dr. Matthew Sorrentino from the University of Chicago Medical Center and with me today is Dr. Gene Poole. Dr. Poole is the professor of medicine and the director of arrhythmia services in the Division of Cardiology Department of Medicine University of Washington in Seattle, Washington. Recent reports have suggested that many patients with advanced heart failure are at substantial increased risk for sudden cardiac arrest and yet they are not receiving ICD therapy. We have asked Dr. Poole to join us today to review how to evaluate heart failure patients for ICD therapy.

DR. MATTHEW SORRENTINO:

Dr. Poole, welcome to the show.

DR. GENE POOLE:

Thank you, it's a pleasure to be here.

DR. MATTHEW SORRENTINO:

I guess we first have to understand, what is the risk of sudden cardiac death and heart failure. Is it a very high risk for our patients?

DR. GENE POOLE:

It's a substantial risk for patients with moderate heart failure. Sudden death still is the primary mode of death. So, to think about the types of death that these patients might experience really falls under 2 categories. Progressive heart failure that ends up in pump failure death, as we tend to refer it and also the other major mode being sudden cardiac death due to ventricular fibrillation or high-rate ventricular tachycardia. So, it's really the primary reason for death in moderate heart failure. As heart failure progresses and becomes more severe than as a percentage of mode of death progressive heart failure becomes the greater risk for those individuals.

DR. MATTHEW SORRENTINO:

Now, we all have patients who we think are doing great. Their heart failure is well treated. They are class I or early class II. Does that reduce the risk of heart failure if their heart failure treatment is optimized?

DR. GENE POOLE:

Medical therapy is critical for patients all along the way in the terms of the progression of heart failure and medical therapy itself reduces the risk of sudden death. But, the clinical trial of implantable defibrillator therapy in patients with heart failure is on top of good medical therapy and the sudden cardiac death and heart failure trial possibly made two trials. Both of them confirmed that you can reduce sudden death by 23 to 30% over the course of time. So, it continues to be a major public health problem in heart failure patients.

DR. MATTHEW SORRENTINO:

So, I think the important thing that we need to understand is patients can be doing well, but they can still have sudden cardiac deaths. So, just because the patient is well treated it doesn't mean their risk suddenly becomes negligible.

DR. GENE POOLE:

Not at all, and in fact, if you look at patients who are considered New York Heart Association Class II, these patients have a significant risk of sudden cardiac death over the course of time and they are also the ones probably have the most benefit from defibrillator therapy because you can extend their life because they are not so far down the road with their heart failure where intervening on their behalf is only going to extend their life by a very short period of time. So, they are very important group to identify.

DR. MATTHEW SORRENTINO:

Are there factors that we can look at that would help us to predict who is going to have sudden cardiac death, in other words, is there an ejection fraction below which we should be thinking about this?

DR. GENE POOLE:

The ejection fraction that has been used in the most recent trial of the sudden cardiac death and heart failure trial was 35% or less. We prior made two trials, which looked like patients just with coronary artery disease used an ejection fraction cutoff of 30%. The current guidelines state that anyone with New York Heart Association Class II or III that is patients with moderate heart failure in whom they have an ejection fraction identified at 35% or less should be considered for an implanted defibrillator.

DR. MATTHEW SORRENTINO:

So, this is a huge population of patients. Is there anyway we can further distinguish that group to try to better choose who gets a defibrillator or should we just be giving defibrillators to everyone.

DR. GENE POOLE:

That is an important question from the perspective of healthcare economic certainly and a number of investigators have tried to look at other risk predictors. Unfortunately today, there is no single one predictor that could be used to refuse an ICD to patients based upon the presence or absence of that predictor. Currently, the best approach is to use the guidelines as stated and identify patients by clinical parameters that are easily measured such as the ejection fraction.

DR. MATTHEW SORRENTINO:

So, when the sudden cardiac death in heart failure trial SCD-HeFT trial both ischemic and nonischemic patients were looked at. Is there any indication in that trial that there is a difference in mortality or difference in sudden death between the ischemic patients versus the nonischemic patients?

DR. GENE POOLE:

Yes. Overall mortality is much higher in patients with an ischemic cause of heart failure compared to those with a nonischemic cause of heart failure. However, both groups had a similar frequency of sudden cardiac arrest type of rhythms and both groups benefited to the same degree from the implantable defibrillator reducing their overall mortality rates.

DR. MATTHEW SORRENTINO:

So, we really can't use the etiology of heart failure as a discriminating factor in these patients.

DR. GENE POOLE:

No, not at all.

DR. MATTHEW SORRENTINO:

Now, is there is any risk in implanting a defibrillator? Is this why some physicians may be reluctant to offer these devices to all of our heart failure patients?

DR. GENE POOLE:

That might be one reason that some physicians are concerned about and certainly some of the problems that have been in the press over the last couple of years such as lead failures and alerts on devices have brought this to the public eye. However, the overall risk of implanting in devices actually quite small for serious complications. We usually code our patients a serious risk related to implantation of a simple implantable defibrillator has been about a 1 out of 800 to a 1000 risk chance.

If you are just joining us, you are listening to The Clinician's Roundtable on ReachMD XM157, The Channel For Medical Professionals. I am Dr. Matthew Sorrentino and we are speaking to Dr. Gene Pool, professor of Medicine and Cardiology at the University of Washington, Seattle and we are discussing the risk of sudden cardiac death in heart failure.

DR. MATTHEW SORRENTINO:

Is there any role currently for antiarrhythmic drugs in patients with advanced heart failure?

DR. GENE POOLE:

Yes, there is. Patients have atrial fibrillation that often needs to be suppressed with an antiarrhythmic drug and also patients who have recurrent episodes of ventricular arrhythmias that then trigger their device often require antiarrhythmic drug to suppress that rhythm. So, even though the device can work as a rescue for them, having repeated bouts of these rhythms often requires antiarrhythmic drug therapy. In heart failure patients, the most commonly used drug is amiodarone.

DR. MATTHEW SORRENTINO:

Now, the SCD-HeFT trial showed that amiodarone was no different than placebo, but it sounds like you are talking about a different way of using amiodarone. It's really used in patients who have now documented rhythms, not primary prevention to try to suppress those rhythms, is that right?

DR. GENE POOLE:

That's correct. So, amiodarone is a primary prevention strategy, will not impact total mortality, but it is an excellent drug to suppress and control frequent episodes of arrhythmias in these patients.

DR. MATTHEW SORRENTINO:

Is there still a role for electrophysiologic testing in these patients or have we gotten beyond that knowing that these patients can benefit from an ICD.

DR. GENE POOLE:

No, not at all. Electrophysiologic testing can be very useful. But we use it in a different way than we did, say 10 to 15 years ago. So, patients for instance who have recurrent episodes of ventricular tachycardia that are reasonably well tolerated, often times can have that rhythm mapped to a specific location inside their heart and then treat it with ablation therapy to actually stop it from coming back.

DR. MATTHEW SORRENTINO:

So, are there patients that you would not put a defibrillator in? I guess I am looking for criteria that would use that you would say, alright this patient has heart failure, the EF is less than 30%, but is not a good candidate for an ICD, what type of criteria would that be?

DR. GENE POOLE:

We generally want patients to have an expected life expectancy of at least a year that certainly is some kind of think we all would agree upon. Also, patients who have significant other medical problems making their overall risk not only for having an implanted device, particularly high, but just there are general health at such a high risk for implanting a device is not going to benefit them. That will be a group that we would not consider implanting a device in, and certainly the most sick heart failure patients, the group that we consider class IV, do not have a benefit from just an implantable cardiac defibrillator. They need other modalities to improve their total outcome.

DR. MATTHEW SORRENTINO:

Is there an age cutoff, would you not give an ICD for somebody over age 84 example?

DR. GENE POOLE:

Oh! That's a great question. Because we have an aging population in United States and often time individuals at age 80 can have a life expectancy even with moderate heart failure that is reasonable and not that not just similar from somebody, say a decade younger. So age per se is not generally a reason to withhold implantable device therapy from an individual. Patients who are elderly need to be considered carefully just like any patient before considering the risks and benefits of implanting the device.

DR. MATTHEW SORRENTINO:

So, can you speculate on why defibrillators are not being used more than they are? Why there is still a large population of heart failure patients who are not even being offered a defibrillator or considered for a defibrillator?

DR. GENE POOLE:

It is a combination of reasons. One of them certainly is that patients who are the less sick heart failure patient, so again the New York Heart Association class II patient. If we think about what kind of patient that is, there often, those who feel pretty well and if they had been seen by a cardiologist and been placed on appropriate medical therapy, they may only be seeing the cardiologist once a year and perhaps primarily following up their primary care physician, particularly as you move away from large metropolitan centers, and so the thought that they may be at risk for sudden death may simply not be beyond the radar. They may not have had a recent assessment of left ventricular functions to note that their ejection fraction is 35% or less. So, it may be something as simple as these patients are those that feel better and not accessing the Medical Health Care System as often and so it is not thought about because most physicians really understand the guidelines. They are very aware of the trials that were done. So, we have to look beyond that and think about other reasons as to why perhaps or not being considered for these devices. Certainly, the issues that you mentioned earlier some concerns about risks and recalls and alerts have perhaps put a damper on some referrals and then there is also a great disparity for certain groups. So, there is a gender and racial disparity with receiving implantable defibrillator certainly and that is another area of concerning I think that we need to look at carefully.

DR. MATTHEW SORRENTINO:

Well, I want to thank Dr. Gene Poole, Professor of Medicine and Cardiology at the University of Washington, Seattle. We have been talking about advanced heart failure and the use of defibrillators in these very sick patients.

I am Dr. Matthew Sorrentino. You have been listening to The Clinician's Roundtable on ReachMD XM 157, The Channel for Medical Professionals. Please visit our website at www.reachmd.com, which features our entire library through on-demand pod casts or call us toll free with your comments and suggestions at 888 MD XM157.

This is _____ assistant professor at Yale School of Medicine in New Have. You are been listening to ReachMD XM 157, The Channel for Medical Professionals.