Phantom shocks: innocent bystander or complication of implantable cardioverter defibrillator therapy?

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Implantable cardioverter defibrillators (ICDs) are effective for both primary and secondary prevention of sudden cardiac death. For patients with reduced left ventricular ejection fraction caused by ischaemic or non-ischaemic aetiology, ICDs have received a class I indication in the recent European guidelines [1]. Adherence to the guidelines has led to a steady increase in implantation rates in the Netherlands and Europe over the last years [2]. Health care utilisation even in patients with primary prevention seems to be high [3]. Quality of life (QoL) might not improve after ICD implantation even though there is controversial evidence on this subject. A main determinant of decrease in QoL, at least in a subgroup of patients with ICDs, is the occurrence of adequate and inadequate shocks [4]. The occurrence of phantom shocks is not systematically reported in randomised trials and also largely negated in studies about QoL.

In this issue of the Netherlands Heart Journal, Kraaier et al. report on the incidence and predictors of phantom shocks from a prospective single-centre database [5]. Interestingly, the incidence is quite high at approximately 5 % in all ICD patients. This might still be an underestimation, as phantom shocks are probably not completely recorded. Differing from inadequate or adequate shocks, there is no objective way to measure the occurrence of phantom shocks. We have to rely on patient reports that need to be recorded in a database. In the presented study, predictors of the occurrence of phantom shocks were history of atrial fibrillation (AF) and better functional capacity. Patients with a history of AF are an interesting subgroup as we know that AF is

often asymptomatic but can be detected during device follow-up. Patients who actually feel AF episodes might be more susceptible to feeling arrhythmias and possibly also experiencing phantom shocks. Whether there is also a phenomenon such as ‘phantom AF’ has not been studied but this is not unlikely. New-onset AF is a negative predictor for cardiac resynchronisation therapy [6] and is also one of the most common causes of inadequate ICD therapy. To be able to feel arrhythmias might be an advantage to prevent inadequate shocks and loss of biventricular stimulation on the one hand but might increase the incidence of phantom shocks on the other hand.

What will the current study by Kraaier et al. add for the practising cardiologist? It should increase awareness of phantom shocks as a complication of ICD therapy in long-term follow-up. It might be important to advise patients that phantom shocks can occur. What is the evidence that phantom shocks actually form an important clinical problem? That is the shortcoming of the results from Kraaier et al. [5]. No results are presented on QoL, health care utilisation, or recurrence of phantom shocks. A prospective study is needed to investigate these issues. QoL is probably lower in patients who receive phantom shocks [7] but it is questionable if this is cause or consequence of a fragile psychological situation. I wonder if phantom shocks recur after good counselling and if they reduce QoL in the long term. Health care utilisation, however, should be higher in patients experiencing phantom shocks. There might be a role for remote monitoring to keep health care expenditures low for patients with phantom shocks but also for the general population of ICD patients. Recently, recommendations have been published that address issues surrounding remote monitoring of patients with ICDs [8].

Whether phantom shocks are a significant health care problem needs to be proven. The study from Kraaier et al. adds to the evidence without providing definite results on

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this issue [5]. Future studies will have to address QoL and health care utilisation due to phantom shocks. Awareness of phantom shocks as a significant part of ICD therapy is warranted and counselling of patients on this issue might be an important addition to current practice.

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