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eHealth for Cardiology - Benefits Need to Be Demonstrated

Despite widespread ecardiology applications, research is showing smaller effects as assessment becomes more robust. It is becoming difficult to demonstrate added value other than patient preference and convenience, according to experts speaking at the European Congress of Cardiology in Rome this week.

When cardiac patients are not attending rehabilitation programmes, then telerehabilitation programmes may close the gap, improving adherence and demonstrating benefits. Telerehabilitation plus standard cardiac rehabilitation is more effective and less costly than standard CR alone in the long term. However, the challenge is to sustain the benefits of telerehabilitation in the long-term in a cost-effective way, .

Ines Frederix, from Antwerp University, outlined their ongoing investigations, which build on the findings from the Tele-REHAB III trial, as well as ongoing investigations into tele-rehabilitation strategies after acute coronary syndromes.

Surveys have shown low compliance with cardiac rehabilitation programmes, and a Europe-wide call for action from the European Association for Cardiovascular Prevention and Rehabilitation (EACPR), Acute Cardiovascular Care Association (ACCA) and the Council on Cardiovascular Nursing & Allied Professions (CCNAP) identified gaps and proposals on how the situation can be improved.

Telemedical care provides the means to address inadequate risk factor control and unhealthy lifestyle behaviour and improve adherence, said Frederix.

Telerehab III was a multicentre randomised controlled trial (RCT) that investigated the long-term effect of comprehensive cardiac telerehabilitation programme. The results, published in the Journal of Medical Internet Research, showed that the intervention group did better in aerobic capacity and also that the programme was cost-effective. Now the researchers are following up the patients over 2.3 years to see if these benefits are sustained. Frederix noted that it has been shown that if rehabilitation stops patients go back to unhealthy lifestyles.

E-Learning for Cardiac Rehabilitation

The eEduHeart I trial will look at the effectiveness of a cardiac web-based elearning platform. Do educated patients do better at rehabilitation than patients who do not receive this education? This will be a multicentre RCT to include 1000 coronary artery disease patients, who will receive one month access or no access to the elearning platform. It includes 20 video unites, with 3 videos per unit about topics relevant to secondary prevention. Each unit includes the caregiver and patient view as well as another relevant item. The videos are 1-2 minutes long only. The evaluation will include usage, feasibility and impact on patient knowledge (assessed by questionnaire) as wel as impact on quality of life.

A further challenge is how to implement telerehabilitation as part of care delivery in a cost-effective way, said Frederix. While an intensive programme is appropriate initially, the question of what is needed long-term also needs to be answered. Gaming may have a role in the future.

Ewa Piotrowicz, of the Telecardiology centre, Institute of Cardiology, Warsaw, Poland, described the trial they are conducting, Applying Telemedicine in a Model of Implementing Cardiac Rehabilitation in Heart Failure Patients, the Telereh-HF study, which will include monitoring of parameters from external as well as implantable electronic devices.

MORE-CARE Trial: Remote Monitoring Showed No Benefit

Heart failure patients fitted with biventricular defibrillators (CRT-D) fared no better with remote monitoring (RM) of their condition compared to those whose devices were monitored during in-clinic visits, according to results of the MORE-CARE study, presented at the ESC Congress and published in the European Journal of Heart Failure.

The MORE-CARE (MOnitoring Resynchronization dEvices and CARdiac patiEnts) trial recruited just over 900 heart failure patients implanted with a CRT-D with wireless transmission capabilities.

Slow recruitment meant that the trial ended early, making it underpowered to evaluate its primary endpoint of mortality and hospitalisations for cardiovascular or device-related reasons. However, there was a secondary finding of cost-savings due to a 41% reduction of in-office visits. This suggests that there may be a valid reason for implementing remote monitoring despite the lack of impact on hard clinical outcomes, according to lead investigator Giuseppe Boriani, MD, PhD, from the University of Modena and Reggio Emilia, Policlinico di Modena, in Modena, Italy.

Within 8 weeks of device implantation 462 patients were randomly assigned to undergo remote checks of their device alternating with in-office visits (remote arm), while 455 patients were randomised to have all their checks done in-office (standard arm). After a median follow-up of 24 months there was no significant difference in the rate of the primary endpoint (29.7% in the remote arm and 28.7% in the standard arm).

“Healthcare resource utilisation for cardiovascular reasons was 38% lower in the remote versus the standard arm, and there was an estimated cost-saving that went along with that – both from the perspective of the healthcare system, but also in terms of personal patient travel costs,” said Boriani.

There were no differences between the groups in terms of quality of life measures or safety issues.

REM-HF Trial Results

Findings from the Remote Management of Heart Failure Using Implantable Electronic Devices (REM-HF) trial, reported at the ESC Congress, showed that remote monitoring was not associated with reduced mortality or fewer cardiovascular hospitalisations compared to usual care. Routine use of remote monitoring, is not supported in the management of patients with cardiac implantable electronic devices (CIEDs), said Martin R. Cowie, MD, from Imperial College London, (Royal Brompton Hospital), London, UK, co-principal investigator of the study.

“The assumption that ‘more data improves outcomes’ is not true,” he added. “If patients are well-treated already, and have well-controlled symptoms, looking at remotely collected data weekly is no better than usual care.”

The REM-HF study was a randomised controlled trial (RCT) 1,650 heart failure patients (mean age 70 years), who had one of 3 types of CIEDs equipped for remote monitoring:

1. cardiac resynchronization therapy [CRT] device with pacemaker [CRT-P];
2. CRT device with defibrillator function [CRT-D];
3. or implantable cardioverter-defibrillator [ICD]);

Patients received either usual care or remote monitoring (RM). RM patients had data downloaded automatically from their device on a weekly basis and this was transmitted to their healthcare professional, who used it to advise them about medication and lifestyle, need for additional clinic visits, or recommendations to visit their general practitioner or the emergency room. They also had the usual care delivered by their local heart failure service.

The usual care group had usual remote monitoring of the device (typically 3-6 monthly) in addition to usual care from their heart failure service.

The primary endpoint of the study was the first event of death from any cause or unplanned hospitalisation for cardiovascular reasons. Secondary endpoints included death from any cause, death from cardiovascular reasons, and unplanned hospitalisation.

After a median follow-up period of 2.8 years, no significant difference was seen between the groups in the primary end point, which occurred in 42.4% of the RM group and 40.8% of the UC group (hazard ratio 1.01; 95% confidence interval [CI] 0.87 to 1.18; P=0.87). Secondary endpoints also occurred at a similar rate in both groups.

“Although some studies investigating a range of remote monitoring strategies have suggested potential benefit, and adoption of remote monitoring is quite widespread, results of the REM-HF trial offer a new perspective that has the potential to change clinical practice”, said John Morgan, MD, University of Southampton, co-principal investigator of the study.

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