

initiative has a return on investment rate of 75% per month. Besides, the study discovered a significant reduction of waiting times for a report from 14.7 days to around one hour.

Conclusion: Building an eCardiological centre in order to provide on time tele-ECG diagnosis to a whole state is an extremely worthwhile strategy to be implemented in developing countries. This practice must be included in public health policies due to the important savings it brings to the public treasury. Furthermore, due to a huge reduction in the waiting time for a report through tele-ECG technology, the method allows the speeding up of the adoption of appropriate therapy.

Category: 08. Risk Factors, Rehabilitation and Prevention

Contact: Wallner Kurt

Telerehabilitation in coronary artery disease (TRIC-study): 12 months data

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Background/Objective: The aim of the study was to evaluate the safety and feasibility of home-based telerehabilitation for patients with uncomplicated coronary artery disease (CAD).

Methods: This non-randomised parallel group study assigned 45 male patients for shortened 2 weeks inpatient rehabilitation followed by a 10-week telerehabilitation programme (TRG) versus 47 patients who completed a conventional 4 weeks inpatient rehabilitation programme (CG). After one year we evaluated 41 patient in the TRG und 45 patients in the CG. Outcome measures were assessed at baseline and after 12 months using cardiopulmonary function (W_{peak} (W_{peak}), $W_{\text{peak}}/\text{kgBW}$ (bodyweight), $WVATI$ (ventilatory aerobic threshold₁), $VO_{2\text{peak}}/\text{kg}$, VO_2 $VATI/\text{kg}$, $W@L(\text{lactate})$ 2 mmol/l, $W@L(\text{lactate})$ 4 mmol/l), laboratory parameters (total cholesterol (TC), high density lipoprotein (HDL)-cholesterol; low density lipoprotein (LDL)-cholesterol; TC/HDL-cholesterol quotient), physical parameter (BW; body mass index (BMI), waste circumference (WC), body fat (BF)), and quality of life (HADS; Short Form 36).

Results: No statistical difference was observed between the two groups at baseline. After 12 months in the TRG, W_{peak} (+23, 1%; $P < 0.001$), $W_{\text{peak}}/\text{kg BW}$ (+24.7%; $P < 0.001$), $WVATI$ (+11.2%; $P = 0.014$), $VO_{2\text{peak}}/\text{kg}$ (+7.4%; $P = 0.008$), and VO_2 $VATI/\text{kg}$ (+4.7%; $P = \text{ns}$) were increased. In the CG only W_{peak} and $W_{\text{peak}}/\text{kg BW}$ increased by +3.5% ($P = \text{ns}$) and +3.2% ($P = \text{ns}$),

respectively. In contrast $WVATI$, VO_2 $VATI/\text{kg}$ and $VO_{2\text{peak}}/\text{kg}$ decreased by -15.1% ($P = 0.002$), -11.1% ($P = 0.006$) and -1.3% ($P = \text{ns}$), respectively. The difference between TRG and CG was highly significant for VO_2 $VATI/\text{kg}$ ($P = 0.016$), W_{peak} ($P = 0.019$), $W_{\text{peak}}/\text{kg}$ ($P = 0.005$) and $WVATI$ ($P = 0.002$). In TRG concentrations of LDL-cholesterol (-22.7%; $P < 0.001$), TC (-14.5%; $P < 0.001$), TG (-17.2%; $P = \text{ns}$) and TC/HDL-cholesterol (-16.9%; $P = 0.001$) decreased significantly during the 12 months. HDL-cholesterol (+1.2%; $P = 0.087$) did not increase statistically significantly. In CG none of the laboratory parameters changed statistically significantly. After 12 months except HDL-cholesterol all parameters showed a statistically significant difference between the groups in favour of the TRG. Physical parameters showed no statistically significant difference within and between the two groups after 12 months. Anxiety, depression and quality of life were not different between the groups at baseline and after 12 months, but both groups showed a statistically significant improvement due to physical quality of life after 12 months.

Conclusion: Accordingly, home-based telerehabilitation can be regarded as safe and feasible for patients with uncomplicated CAD. In addition, we could show significant improvements due to physical fitness and change in risk factors in the TRG compared to regular 4-week inpatient rehabilitation.

Category: 09. Remote Patient Management: Heart Failure and Devices

Contact: Desteghe Lien

Telemonitoring-based feedback improves adherence to non-vitamin K antagonist oral anticoagulant intake in patients with atrial fibrillation

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Background: Effective thromboembolic prevention with non-vitamin K antagonist oral anticoagulants (NOACs) requires a strict therapy adherence given the half-lives of these drugs of about 12 hours. Systematic monitoring of anticoagulation or medication intake is not performed in NOAC patients. Initiatives are needed to monitor and/or improve adherence to NOAC therapy. The purpose of this study is to investigate the effect of personalised feedback, based on telemonitoring of medication intake, on adherence to NOACs in patients with atrial fibrillation (AF).

Methods: In total, 48 AF patients (mean age 72 ± 9 years; 24 on a once daily (OD) NOAC (rivaroxaban) and 24 patients on a twice daily (BID) NOAC (apixaban)) were enrolled in a randomised, single-blind, crossover, controlled trial. The medication event monitoring system (MEMS; WestRock, Switzerland) was used to measure NOAC adherence. Patients were assigned to an observation phase and a feedback phase of 3 months each, in random order. Adherence data were checked on weekdays through telemonitoring. During the feedback phase, patients received a phone call in the case of an 'unprotected day' (i.e. three or more consecutive missed doses for a BID NOAC, one or more missed doses for a OD NOAC or excess doses during the prior 24 hours). Taking adherence (i.e. proportion of prescribed doses taken), regimen adherence (i.e. proportion of days with the correct number of doses taken) and the number of unprotected days were calculated, based on the MEMS data. After 6 months, a questionnaire was used to evaluate the study experience.

Results: A 98% persistence was obtained as no patient stopped NOAC treatment. One patient was switched to VKA after 3 months due to a venous thrombus. Active telemonitoring observation already led to a very high adherence, with a taking adherence of 97.4% and a regimen adherence of 93.8%. Nevertheless, direct telephone feedback further improved the adherence: taking adherence increased with 1.6% to 99% ($P < 0.001$) and regimen adherence with 3% to 96.8% ($P = 0.001$). The number of unprotected days during 3 months decreased from 2.6 to 1.5 ($P = 0.125$). Both during the observation and the feedback phase, taking adherence was higher with the OD NOAC ($P < 0.001$ and $P = 0.018$, respectively) although unprotected days were similar ($P = 0.272$ and $P = 0.251$, respectively). Study experience was positive as 87.2% of the patients found the MEMS monitor practical to use, 63.8% indicated that the study increased their awareness to take their medication at the correct time, and 97.6% of the patients who received a phone call indicated telephone feedback as useful.

Conclusion: Telemonitoring showed an unexpectedly high adherence to NOACs in an elderly unselected population. This may be related to highly motivated patients but certainly also to the sense of being watched. However, telemonitoring-based feedback further optimised the adherence, which may be a valuable approach in selected patients deemed poorly adherent in clinical practice.

Category: 07. Mobile Health

Contact: Brouard Benoît

SOPHOC: Feasibility study to transform high blood pressure management using activity trackers and wireless blood pressure monitors

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Background: Effective high blood pressure (BP) management requires lifestyle changes that may be difficult to sustain in day-to-day life. However, the growing adoption of mobile health technology and connected health devices by the general population may make such behaviours easier to adopt and maintain. Such technology could improve patient compliance for proper high BP management as well as decreasing the societal costs associated with unmanaged high BP. The aim of the SOPHOC study (Suivi Observationnel des Patients Hypertendus grâce aux Objets Connectés) is to investigate the feasibility and acceptability of connected health devices to help ambulatory patients manage high BP over a one-year period.

Methods: The study group included 50 patients with poor high BP control, or poor lifestyle habits, or excess weight, or sedentary lifestyles. The patients were included from December 2015 to May 2016 in various doctors' offices. The patients were each equipped with an activity tracker and a wireless blood pressure monitor (BPM) from Withings. These two devices were connected to the Withings mobile application, Health Mate. The participants were briefed by cardiologists on the purpose of the devices, and were shown how to use them. Once a week for 28 weeks, the patients were automatically sent a message with advice on how to reduce high BP through the mobile application. Anonymous data were then collected on the number of steps taken per day as well as systolic and diastolic BP values. Patients were followed at distance without any intervention from cardiologists. Follow-up consultations will be scheduled at 6 and 12 months. This preliminary study is focused on the 14 first patients achieving 5 months of follow-up.

Results: The mean age of the overall population is 56.2 years, and the study includes 15 women and 35 men. Mean body mass index is 28.33 kg/m^2 . All of the 14 patients with 5 months of follow-up used their tracker for the first 3 months, but only 10 continued usage through the fifth month. Similarly, all 14 patients used the BPM the first month, but only nine continued usage through the fifth month. Patients wore their tracker an average