Results In total, over the three years, 41 TdP-cases were identified of which 19 cases were secondary to the acquired long QT-syndrome (52.6% females, mean age of 74 ± 12 years). This corresponds with an incidence of 0.159 TdP-cases per thousand patients per year (‰/y) in a hospital population. Most common risk factors were infection (n = 16) and hypertension (n = 14). Most of the patients (n = 17) were treated with at least one QTc-prolonging drug of whom 12 patients with ≥ 1 QTc-prolonging drug of list 1 of Crediblemeds. The most frequently involved QTc-prolonging drugs were amiodarone (n = 6), sotalol (n = 4) and furosemide (n = 4). Fifteen patients had an electrocardiogram in a 24-hours interval before the TdP with a prolonged QTc-interval (≥ 450/470 ms). All the patients had a RISQ-PATH score ≥ 10.

Conclusions Although the incidence of 0.16‰/y might seem low, extrapolated to the complete in-hospital population in Belgium, this means that approximately 173 possibly lethal TdP-cases can be expected in Belgian hospitals each year, illustrating the importance of QTc-monitoring procedures. The RISQ-PATH score was able to predict the described TdP-cases and can be used to prevent TdP in the future.

Telemonitoring based feedback improves adherence for non-vitamin K antagonist oral anticoagulants in patients with atrial fibrillation. — L. Desteghe[1,2], J. Vijgen[2], D. Dilling-Boer[2], P. Koopman[2], J. Schurmans[2], P. Dendale[1,2], H. Heidbuchel[1,2] *([1]Faculty of Medicine and Life Sciences, Hasselt University, Hasselt, Belgium, [2]Heart Center, Jessa Hospital, Hasselt, B).*

Objectives Effective therapy with non-vitamin K antagonist oral anticoagulants (NOACs) requires strict therapy adherence. Data on interventions to monitor and/or improve adherence to NOAC therapy are almost absent. The aim of this study was to investigate the effect of in-person feedback, based on telemonitoring of medication intake, on adherence to NOACs in patients with atrial fibrillation (AF).

Methods 48 AF patients (24 male; mean age 72 ± 9 years; 24 patients on a once daily (OD) NOAC (rivaroxaban) and 24 on a twice daily (BID) NOAC (apixaban)) were enrolled in a randomized, single-blind, crossover, controlled trial. The Medication Event Monitoring System (MEMS, WestRock, Switzerland) was used to measure NOAC adherence. Patients were randomized to 3 months each of a purely observation phase and a feedback phase, in random order. Adherence data was checked on weekdays through telemonitoring. During the feedback phase, patients received a phone call in case of an 'unprotected day'. Taking adherence (i.e. proportion of prescribed doses taken), regimen adherence (i.e. proportion of days with the correct number of doses taken) and number of unprotected days were calculated based on the MEMS data. An 'unprotected day' was defined as three or more consecutive missed doses for a BID NOAC and one or more missed doses for a OD NOAC. Patients were also contacted when they took excess doses during the prior 24 hours.

Results No patient stopped OAC treatment, although one was switched to VKA after three months due to a venous thrombus (i.e. persistence = 98%). Already under active telemonitoring observation, adherence was very high, with a taking adherence of 97.4% and a regimen adherence of 93.8%. Nevertheless, adherence was further improved through direct feedback: taking adherence increased with an absolute 1.6% to 99% ($P < 0.001$) and regimen adherence with 3% to 96.8% ($P = 0.001$). The number of unprotected days in a 3 month period 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).

Conclusions Telemonitoring revealed 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. Nevertheless, telemonitoring based feedback further optimized the adherence. This may be a valuable approach in selected patients deemed poorly adherent in clinical practice.

Effect of individualised education on knowledge, symptom profile and quality of life of patients with atrial fibrillation. — L. Desteghe[1,2], L. Engelhard[1], J. Vijgen[2], D. Dilling-Boer[2], P. Koopman[2], J. Schurmans[2], P. Dendale[1,2], H. Heidbuchel[1,2] *([1]Faculty of Medicine and Life Sciences, Hasselt University, Hasselt, Belgium, [2]Heart Center, Jessa Hospital, Hasselt, B).*

Objectives Education of patients with atrial fibrillation (AF) is an important aspect to optimize the management of these patients. However, the best strategy to provide education is not known. The aim of the study was to investigate the effect of tailored education on the knowledge level, symptom burden and quality of life of patients with AF.

Methods A prospective randomized controlled trial was set up to evaluate the effect of individualised education using the Jessa Atrial fibrillation Knowledge Questionnaire (JAKQ). The validated JAKQ contains 8 questions about AF in general, 5 questions about oral anticoagulation therapy and either 3 questions about vitamin K antagonists or non-vitamin K antagonist oral anticoagulants. A total of 67 hospitalized or ambulatory AF patients were included.

At baseline, one group of patients (intervention group) received individualized, tailored education towards the knowledge gaps revealed by the JAKQ. The other group (control group) received standard care. Both at baseline and after 1 month, patients had to complete 3 questionnaires to assess the knowledge level (JAKQ), the symptom profile (Leuven Arrhythmia Questionnaire) and the quality of life (SF-12 questionnaire).

Results The 1 month follow-up was completed in 64 patients (i.e. drop-out of 4.5%) of whom 31 were assigned to the intervention group and 33 to the control group. Patients had a mean age of 72 ± 8 years and 61.1% were male. The completion of the JAKQ took on average 6.2 ± 2.9 min (n = 64) at baseline and 6.4 ± 2.8 min at follow-up (n = 64). Providing tailored education after JAKQ completion in the intervention group required an extra 8.5 ± 4.9 min (n = 31). When re-assessed 1 month later, the intervention group scored significantly better on the JAKQ compared to baseline (58.5 ± 15.9% vs. 77.4 ± 13.3%, $P < 0.001$), while there was no improvement in the control group (59.1 ± 18.5% vs. 61.6 ± 19.6%, $P = 0.428$). No significant effects on symptom profile or quality of life could be found after 1 month.

Conclusions The JAKQ is a suitable tool to provide individualized education for AF patients. After a single directed educational session based on completion of the JAKQ, the knowledge level of AF patients could be significantly improved with lasting effects after one month. This small pilot study with short follow-up did not show impact on symptom burden or quality of life, which may need larger and longer-term studies.

The "Health Buddies" application: a novel way to improve the medication adherence and knowledge of atrial fibrillation patients. — L. Desteghe[1,2], K. Kluts[1], J. Vijgen[2], D. Dilling-Boer[2], P. Koopman[2], J. Schurmans[2], P. Dendale[1,2], H. Heidbuchel[1,2] *([1]Faculty of Medicine and Life Sciences, Hasselt University, Hasselt, B, [2]Heart Center, Jessa Hospital, Hasselt, B).*

Objectives Optimal thromboembolic prevention in atrial fibrillation (AF) patients requires strict adherence to the prescribed oral anticoagulation treatment. The 'Health Buddies' application was developed for AF patients to improve their adherence to non-vitamin K antagonist oral anticoagulants (NOACs) by arranging a virtual contract with their grandchild(ren) providing daily challenges for both. This innovative tool educates, reminds, motivates and supports AF patients to be adherent. This pilot study assessed the feasibility and usability of the 'Health Buddies' application in a large target group of AF patients.

Methods The feasibility of the app (developed by i-propeller and DAE Studios with a grant from Bayer NV) was investigated by assessing the number of eligible AF patients (based on current prescription of NOACs; the presence of grandchildren between 5 and 15 years old; availability of a smartphone, computer or tablet), and the proportion of those willing to participate. Participants had to use the application for 3 months. We examined the motivation of the patients and grandchildren to use the application (based on the number of logins to the app), and their perception of its usefulness by specific questionnaires.

Results Out of 830 screened AF patients, 114 were eligible for inclusion. In total, 420 patients (58.7%) were excluded because they were not taking NOACs. Of the remaining 410 NOAC patients, 228 had no grandchildren in the correct age category (50.6%), 43 had no smartphone, computer or tablet (10.5%) and 25 patients (6.1%) were excluded for other reasons. Only 13.2% of the eligible patients (n = 15) was willing to participate in the study. Main reasons cited for not participating were: no interest to participate in general or in the concept in particular (29.3%), not feeling comfortable using technology (22.2%), no interest by the grandchildren or their parents (20.2%), or too busy lifestyle (12.1%). The proportion of days logged-in into the application ranged between 1.1% and 98.9% for patients and between 5.6% and 80.0% for the grandchildren. App use by the grandchildren decreased towards the end of the study period ($P < 0.001$). The application scored positive on clearness and novelty as measured with the user experience questionnaire.

Conclusions Only a small proportion of the current AF population seems eligible for this innovative application in its current form. Although perceived as novel by the users, a large subset of patients was not willing to participate in this study or to use the application. Adaptations are needed to expand the target group in the future.

Late potentials are more pronounced in SCN5A mutation carriers compared to SCN5A negative Brugada syndrome patients. — T. Robyns[1,2], B. Vandenberk[1,2], J. Ector[1,2], C. Garweg[1,2], A. Corveleyn[3], C. Kuiperi[3], J. Breckpot[3], D. Nuyens[4], R. Willems[1,2] *([1]Department of Cardiovascular Diseases, University hospitals Leuven, Belgium, [2]Department of Cardiovascular Sciences, University of Leuven, Belgium, [3]Center for Human Genetics, University hospitals Leuven, Belgium, [4]Department of Cardiology, Ziekenhuis Oost Limburg Genk, Belgium).*

Objective Mutations in the SCN5A gene are the main monogenetic cause of Brugada syndrome and are found in about 25% of patients. Typically SCN5A mutations cause both atrial and ventricular conduction slowing, while these findings are not (or to a lesser extent) observed in SCN5A negative BrS patients. Therefore we evaluated whether late potentials (LP) as assessed by SAECG are more prevalent