changed (Figure 2). Compared to VT burden before treatment, all 7 patients had substantial reduction 6 months after treatment (4 had > 95% burden reduction, 1 had resolution of incessant slow VT).

Conclusion: Despite improvement in VT burden, there was no appreciable cardiac injury or replacement fibrosis after CRA with 25 Gray. The mechanism of early VT control with cardiac radioablation is not myocyte injury or fibrosis.

CA-533-03

STEREOTACTIC BODY RADIOTHERAPY FOR REFRACTORY VENTRICULAR TACHYCARDIA: THE OVERALL CZECH EXPERIENCE

Petr Peichl MD, PhD; Jana Haskova MD; Dan Wichterle MD, PhD; Rader Neuwirth MD; Otakar Jiravsky; Jakub Cvek MD, PhD; Lukas Knybel PhD; Marek Sramo MD, PhD and Josef Kautzner MD, PhD

Background: Catheter ablation (CA) is a well-established treatment strategy for the management of drug-refractory ventricular tachycardia (VT) in patients with structural heart disease. Stereotactic body radiotherapy (SBRT) was proposed recently as a treatment option for cases of failed CA.

Objective: This study reports overall experience with the SBRT from two Czech centers.

Methods: Since 2014, we enrolled consecutive patients who underwent at least one prior CA for recurrent scar-related VT and had subsequent VT recurrences due to inaccessible substrate. Single-session SBRT for VT was performed without the use of general anesthesia or sedation. A dose of 25 Gy was delivered.

Results: The study investigated 33 patients (3 women) with a mean age of 66 ± 9 years. Underlying heart disease was ischemic (58%) and nonischemic (39%) cardiomyopathy; one patient had large cardiac fibroma. The mean left ventricular ejection fraction was 31 ± 6%. Seventy-six percent of patients were on amiodarone. Before SBRT, they underwent a median of 2 (IQR: 1-3; range: 1-5) CA that included epicardial access in 42% of patients. Following SBRT, they underwent a median of 2 (IQR: 1-3; range: 1-5) CA that included epicardial access in 42% of patients. Following SBRT with a planned target volume of 42.6 ± 22.8 ml, the immediate effect was not observed in any patient, VT burden gradually decreased over weeks or months. Seventeen (52%) patients died (2 of them suddenly) during the mean follow up of 29 ± 23 months mainly due to the progression of heart failure (Figure 1). One patient died due to bleeding associated with esophagopericardial fistula that developed 9 months after SBRT. Overall, the number of DC shocks after a single procedure decreased significantly from 0.9 ± 1.9 per month in the period of 6 months before SBRT to 0.1 ± 0.3 per month in the period of 6-12 months after SBRT (P=0.008, Figure 2). However, 14 patients (42%) had to undergo additional CA due to VT recurrences at a mean interval of 13 ± 14 months after SBRT. Three patients underwent repeated SBRT (after 3, 29, and 38 months), which was successful in 2 of them.

Conclusion: SBRT in patients with refractory VT is feasible but the long-term mortality after the procedure is high and reflects mainly the severity of the underlying disease. The treatment effect of SBRT is delayed and additional CA is often necessary for VT suppression. At present, SBRT should be offered only as a bailout procedure for otherwise intractable VT.

CA-533-04

SAFETY AND EFFICACY OF CARDIAC RADIOABLATION VERSUS REPEAT CATHETER ABLATION FOR HIGH-RISK REFRACTORY VENTRICULAR TACHYCARDIA

Cliff Robinson MD; Phillip Cuculich MD; Pamela Samson MD; Carlos Contreras; Kaitlin Moore BS; Mitchell N. Faddis MD; Timothy W. Smith MD, DPhil, FHRS; Marye J. Gleva MD, FHRS and Daniel H. Cooper MD

Background: Cardiac radioablation (CRA) is an emerging treatment for high-risk refractory ventricular tachycardia (VT). A direct comparison of safety and efficacy of CRA versus repeat catheter ablation (CA) has not yet been performed.
Objective: Contrast outcomes of CRA and CA for high-risk refractory VT at a high-volume center.

Methods: Single-center, IRB-approved case series of patients with refractory VT who had failed at least one prior CA (or were unfit for CA) treated with CRA and CA. Demographics, treatment-related (probably, definitely) serious adverse events (SAEs), and rates of survival (OS) and freedom from shock or storm (FFSS, with 6 week blanking period) were collected. Formal statistical comparisons were not performed due to limited patient numbers.

Results: From 2015-2020, 22 patients were treated with CRA (18 with prior CA, 4 unfit for CA) for high-risk refractory VT. A cohort of 21 equivalent patients treated with repeat CA (21 with prior CA) were identified from 2015-2017 (dates chosen to balance use of contemporary CA techniques with potential selection bias of increasing CRA use in recent years). Overall, CRA and CA patients had similar proportions of male sex (91%), and median NYHA class (III), LVEF (25%), and prior CA (1). In contrast, CRA patients were numerically older (median 64.5 vs 59 years), more likely to have a “High Risk” l-VT score (64% vs. 52%) and have higher median PAINESD scores (median 18.5 vs. 17). Median follow-up was 28.2 months. One-year treatment-related SAEs were 14% vs 38% (CRA vs CA). Most CA-related SAEs occurred within the first month, with 4/5 (80%) early CA deaths occurring immediately after a SAE. Median OS (Figure 1) was 28.2 vs 12.2 months (CRA vs CA). One-year OS was 72.7% vs 53% (CRA vs CA). Median FFSS (Figure 2) was 8.2 vs 9.7 months (CRA vs CA) and 1-year FFSS was 42.4% vs 45.7% (CRA vs CA).

Conclusion: In patients with high-risk refractory VT, CRA was associated with numerically fewer treatment-related SAEs and higher rates of median and 1-year OS, with equivalent rates of clinically relevant VT control (FFSS). These results suggest the principal benefit of CRA may be in avoidance of early SAEs associated with CA. Long-term follow-up will be required to assess late SAEs and efficacy. Further research is underway to develop methods to improve longer-term VT suppression with CRA.

ABSTRACT DH-576:
Health Tech: Disease Management and Care Delivery
Saturday, April 30, 2022
2:15 PM - 3:15 PM

DH-576-01
USE OF HEALTHCARE DATA COLLECTED BY APPLE WATCH TO PREDICT ATRIAL FIBRILLATION ATTACKS
Takehiro Kimura MD, FHRS; Hiroshi Miyama; Kenji Hashimoto; Yoshinori Katsumata MD, PhD and Seiji Takatsuki MD, FHRS

Background: The incorporation of digital healthcare big data collected by wearable devices as a personal health record into medical care is expected to lead to early detection.

Objective: We analyzed the characteristics of digital healthcare data related to atrial fibrillation (AF) attacks.

Methods: Ninety-three patients with AF (69 males, mean age 64 ± 12 years) attending Keio University Hospital wore a 2-week-Holter ECG to detect AF attacks. We created an iPhone application to collect health care data by wearing the Apple Watch during the day and asleep, and by answering a questionnaire upon waking. The period assessed as sedentary by Apple Watch was defined as the analyzable resting state, and AF recorded by ECG for more than 30 seconds was defined as an attack.

Results: Resting AF attacks were recorded in 69 patients (74.2%), with a total of 2,529 hours. The mean heart rate recorded by the Apple Watch during AF attacks was significantly higher than that during non-attacks by a mean of 10.2 ± 4.0 bpm (p < 0.001). The number of steps walked per day measured by the Apple Watch was significantly higher on attack days than on non-attack days (5,889 vs. 5,100 steps, p = 0.030). 52.3% of patients with AF attacks had consumed alcohol the day before, and the presence of alcohol consumption the day before significantly increased attacks the following day (odds ratio: 1.438, 95% confidence interval: 1.132-1.827, p = 0.003).

Conclusion: Our results suggested that it was possible to predict AF attacks by integrating medical records, a large amount of unconsciously recorded digital healthcare data, and subjective questionnaire data.

DH-576-02
EKG AS A NON-FUNGIBLE TOKEN: IMPLICATIONS OF BLOCKCHAIN TECHNOLOGY FOR THE ELECTROPHysiologist, THE PATIENT, AND HEALTH SYSTEMS
Bishoy Hanna MD; Neal A. Chatterjee MD, MS and Nazem Akoum MD, MS, FHRS

Background: Third-generation cryptocurrencies with smart-contract capability have allowed for the creation of non-fungible tokens, or NFTs. While NFTs of multi-million-dollar art have been popularized recently in the media, there are several potential use-cases for NFTs that could be relevant to electrophysiology and medicine as a whole. The security, immutability, decentralization,