

wiener klinische wochenschrift

The Central European Journal of Medicine

132. Jahrgang 2020 · Supplement 5

Wien Klin Wochenschr (2020) 132 :S153–S329
<https://doi.org/10.1007/s00508-020-01749-z>
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Nature 2020



ÖG HTG

Österreichische Gesellschaft für
Herz- und thorakale Gefäßchirurgie



ÖKG

Österreichische
Kardiologische
Gesellschaft

Abstracts

Österreichische Kardiologische Gesellschaft Jahrestagung 2020

mit Beteiligung der Österreichischen Gesellschaft für Herzchirurgie und
thorakale Gefäßchirurgie

Salzburg, 1. bis 3. November 2020

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2018 and 2019. Inter- and intra-year analyses were conducted through Chi-square test and Poisson regression.

Results: A total of 2310 atrial fibrillation-, and 511 electrical cardioversion episodes were included. We found no significant differences in the respective incidences in inter-year analyses of the overall time periods from January to May, or in those of the weeks pre- and post the national lockdown due to SARS-CoV-2 pandemic. However, an intra-year analysis of the year 2020 showed a trend towards a decrease in atrial fibrillation incidences (rate ratio 0.982, CI 0.964–1.001, $p=0.060$), and a significant increase of electrical cardioversion incidences towards the post-lockdown period (rate ratio 1.051, CI 1.008–10.96, $p=0.020$).

Conclusion: The decreased atrial fibrillation incidences are in line with international data. However, an increased demand of electrical cardioversions during the lockdown period was observed. A higher threshold of patients to seek medical attention may result in a subsequently selected group with potentially more severe clinical courses. In addition, lifestyle modifications during isolation and a higher stress level may promote atrial fibrillation episodes to be refractory to other therapeutic approaches than electrical cardioversion.

CO-1-5

Pacemaker implantation rates during COVID-19

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Introduction: Studies showed significantly reduced rates of patients presenting with acute coronary syndrome during the COVID-19 crisis. However, there is only limited data showing the trend of pacemaker implantations.

Methods: We evaluated the weekly rates of pacemaker implantation at our centre during the national lockdown for COVID-19 at the between 16 March 2020 and 29 April 2020 (weeks 12–17/2020), compared to the implantation rates 6 weeks before (weeks 6–11/2020), 6 weeks afterwards (weeks 18–23/2020), and the same time frame in 2017–2019. To reduce bias due to postponed planned procedures, we stratified pacemaker implantations into the following groups: total implantations (including box changes), new pacemaker implantations, implantation due to AV block, implantation due to supraventricular conduction disturbances, and other implantations.

Results: The total number of total weekly implantations was reduced from 10.7 (weeks 6–11/2020) to 4.2 (weeks 12–17/2020; -60.1%, $p=0.02$). We found no significant reduction in the same time frame in 2017–2019 (6.5 vs. 6.1 per week, $p=0.29$). We found a similar effect in “new” pacemaker implantations (8.5 vs. 3.2 per week, -62.7%, $p=0.02$) and AV block (5.0 vs. 1.5 per week, -70%, $p=0.03$). There was no reduction in pacemaker implantation due to sick sinus syndrome (2.5 vs. 0.8 per week, -66.7%, $p=0.12$) and other indications (1.0 vs. 0.8 per week, -16.7%, $p=0.86$). In the six following weeks (18–23/2020), the total numbers (6.0 per week) and indications other than AV block rose to baseline ($p > 0.05$), but patients with AV block were still less prevalent (1.7 per week, $p=0.04$).

Conclusion: The reduction of total and new pacemaker implantations during the COVID-19 lockdown was mainly based on a reduced pacemaker implantation rate for AV block. This effect persisted even after the national lockdown. This analysis implies that a significant number of patients with AV

block may have avoided medical contact during and after the lockdown and therefore may have experienced increased mortality.

CO-1-6

Impact of COVID-19 on ablation numbers in the Austrian Ablation Registry

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Introduction: Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has emerged as a pandemic crisis and poses major challenges to health care systems globally. COVID-19 is related to significant morbidity and mortality but has also been linked with a decrease in emergency and total hospital admissions, i. e. for acute coronary syndromes or stroke. The impact of this “collateral” damage of COVID-19 on outcomes is not yet foreseeable and may also impact patients with arrhythmias. Objective: We assessed the impact of COVID-19 on admission rates for elective ablations as well as emergent ablations for ventricular tachycardia (VT) in Austria.

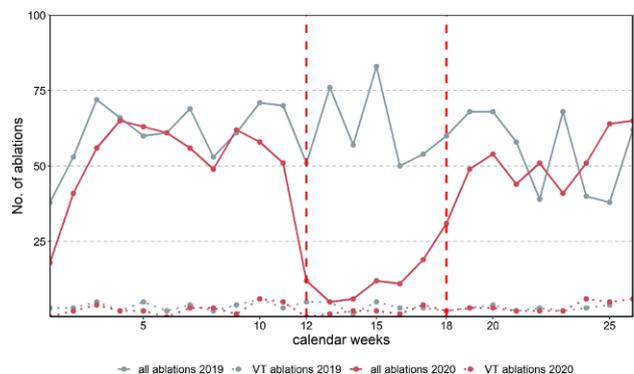


Fig. 1 | CO-1-6 Impact of COVID-19 on ablation procedures in Austria. The absolute numbers of all ablations from January to June 2019 (grey, solid line), of emergent ablations for ventricular tachycardia (VT) from January to June 2019 (grey, dotted line), of all ablations from January to June 2020 (red, solid line), and of emergent ablations for ventricular tachycardia from January to June 2020 (red, dotted line) are shown. Dashed, vertical lines depict the begin and end of lockdown in Austria

Methods: Our data derive from the prospective Austrian ablation registry including all consecutive patients entered in the database until July 1 2020. Austrian public authorities announced measures of social restriction (“lockdown”) between March 16th and April 30th, 2020. We compared the number of ablation procedures for any arrhythmia (supraventricular tachycardia, atrial fibrillation or VT) and of emergent ablations VT for the time period of social restrictions with the same time period of 2019.

Results: In total, 500 patients were eligible for this analysis. Mean age was 59.6 ± 14.0 years, 187 (37.4%) were female. Compared to 2019 there was a relative reduction of 76.3% ($n=404$ vs. $n=96$) in overall ablation procedures, and a relative reduction of 47.1% in VT ablations ($n=23$ vs. $n=12$) (Fig. 1). Of note, the proportion of VT ablations increased from 5.7% in 2019 to 12.5% in 2020.

Conclusion: COVID-19 was associated with a significant decline in total ablations as well as emergent VT cases, although the relative proportion of VT ablations increased. Nevertheless, if the absolute decrease in acute VT ablation procedures translates into elevated morbidity and mortality has to be further elucidated.

POSTERSITZUNG 8 – RHYTHMOLOGIE 2

PS 8/8-1

Cardiac sympathetic denervation for the control of refractory ventricular arrhythmia: a single center experience

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Introduction: Cardiac sympathetic denervation (CSD) alters the autonomic tone of the heart by reducing its sympathetic input. In patients with refractory ventricular arrhythmia not amendable to medical control and radiofrequency ablation, CSD could be considered as an adjunct therapy. Unlike in patient with underlying long QT syndrome (LQTS) and catecholaminergic polymorphic ventricular tachycardia (CPVT) where evidence and experience for CSD use are strong, the efficacy of CSD in ventricular arrhythmia associated with ischemic and non-ischemic cardiomyopathy is relatively undefined. This case series aimed to add to the current understanding of the use of CSD in patients with ischemic and non-ischemic cardiomyopathy and refractory ventricular arrhythmia by following up their post-operative clinical course.

Methods: All patients referred to the Ordensklinikum Linz Elisabethinen from the period December 2018 to December 2019 for the management of refractory ventricular arrhythmia (VAR) and deemed CSD candidates were recruited. A total of 11 patients were identified, four with ischemic cardiomyopathy, one with coronary spasm, one with dilated cardiomyopathy, one with non-compaction and four with arrhythmogenic right ventricular cardiomyopathy. Transthoracic endoscopic bilateral sympathectomy surgery was performed under general anesthesia. Post-operatively, these patients were contacted by phone at regular interval to update on their ventricular arrhythmia control and their vital status.

Results: The mean monitoring period was 277 days. As of March, 2020, two patients were lost to contact. Concerning the

remaining 9 patients for whom follow up information was available, six had no implantable cardioverter defibrillator (ICD) shocks (66%), three had VAR and shocks (33%). In addition, two patients had passed away (22%). One patient had no ICD shock prior to death. Another patient with advanced disease and residual VAR had deceased after heart transplantation. Accepted control of VAR was noted in the two remaining patients with residual ICD shocks, one patient had three ICD shocks in one day followed by no shocks in the following 10 months, and one patient had post-operative ventricular tachycardia followed by no additional ICD shocks. Limitation: Subclinical VAR terminated by anti-tachycardia pacing not reported by patients was not reflected in this study.

Conclusion: CSD was a valuable adjunct therapy to refractory VAR in ischemic and non-ischemic cardiomyopathy patients.

PS 8/8-2

High degree atrial ventricular block and sinus arrest during cryoballoon for atrial fibrillation

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Introduction: A 56-year-old man was referred for pulmonary vein isolation for symptomatic lone paroxysmal atrial fibrillation. There was no history of bradycardia including sinus node dysfunction or heart block. His baseline ECG during sinus rhythm was unremarkable with PR interval of 194 ms and QRS 106 ms. He was on dabigatran 110 mg twice daily and was not on any rate controlling agents.

Methods: Cryoballoon ablation using 28 mm second generation Arctic Front Cryoballoon (Medtronic) was arranged for the patient’s pulmonary vein isolation. Transeptal puncture and pulmonary venous access were achieved under fluoroscopic guidance. Adequate sealing of the pulmonary vein ostia by the cryoballoon was confirmed by contrast injection. Isolation of the veins were monitored by local pulmonary vein signals by the Achieve catheter. Left superior pulmonary vein was the first to be isolated. A 240 s freeze was performed uneventfully with stable heart rate, satisfactory target temperature and loss of local venous signal. During thawing, the patient developed prolonged sinus pause and complete atrioventricular block that took a total of 42 s to resolved spontaneously (Fig 1). Pacing was started from the coronary sinus catheter, which was immediately available at that juncture. There was atrial capture without ventricular conduction (Fig 2). Right ventricular catheter was inserted for ventricular pacing. Further cryoablation was performed to the remaining left inferior (LIPV), right inferior (RIPV) and right superior pulmonary veins (RSPV) in this order and all resulted in bradycardia. Complete heart block occurred during ablation of all four veins and sinus arrest occurred during LSPV and LIPV ablation. Pulmonary vein isolation in the patient was successful achieved with ventricular backup.

Results: Cryoballoon ablation for pulmonary vein isolation leads to vagal reaction in 24% to 42% of patients, with response ranges from bradycardia to asystole and high degree atrioventricular block. 1-2 This is mainly perceived to be due to the autonomic nervous system modification secondary to cryoablation of the ganglionic plexi located near the junctions of left atrium and the ostium of pulmonary veins. The area of ablation created by second generation 28 mm cryoballoon catheter during PVI is wide and antral, leaving only 27% of posterior left atrial wall