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ECG monitoring after Covid - 19

G. Matejová, M. Radvan, L. Koc, M. Kameník, R. Štěpánková, P. Kala

Department of Internal Medicine and Cardiology, University Hospital Brno and Faculty of Medicine of Masaryk University, Brno, Czech Republic

Department of Health Sciences Masaryk University

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CoSuBr (Covid survivals in Brno) - Methods

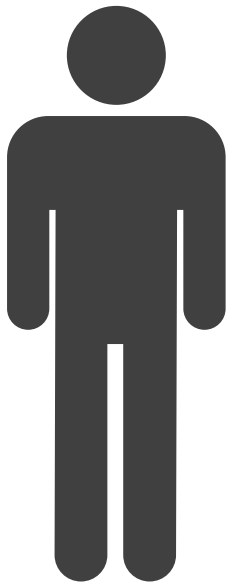
- Prospective observational cohort study
- March 2020 - January 2021
- Positive PCR swab test – alpha and beta variants
- 1 year of follow up
- 3 Visits (**V1**- 6 weeks, **V2**- 6 months, **V3**- 1 year)
- Demographic parameters, clinical evaluation
- Echocardiography
- 7- days ECG monitoring
- Spirometry
- Laboratory parameters

Aims

- To evaluate cardiovascular risks and the need of systematic cardiovascular screening in patients recovered from Covid -19

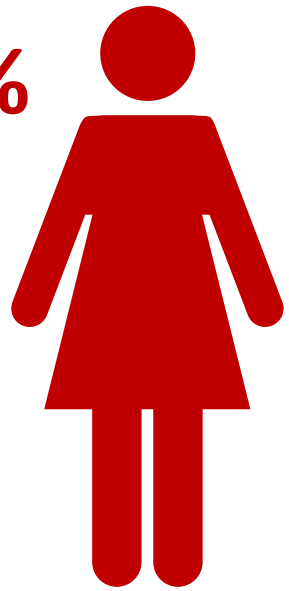
Results

- 106 patients
- **84** (79%) patients had all three visits
- Mean age 47,5 years (18-77)



41,5%

58,5%



Results - Acute phase

- **26** patients (24,6%) were hospitalized due to acute infection, **12** of them at ICU

Acute infection	n (%)
Asymptomatic	1 (1)
Mild (flu like symptoms, anosmia)	77 (73,3)
Moderate (pneumonia, no O2)	5 (4,8)
Severe (pneumonia with O2)	19 (18,1)
Critical (nasal high flow, NIV, UPV, ECMO)	3 (2,9)

Results - Persisting symptoms

- **More than half of patient** suffered from persisting symptoms of the disease at all three visits V1, V2 and V3

Persisting symptoms (%)		
V1	V2	V3
64,20%	72,30%	62,70%

- More than half of the whole group (50.9%) mentioned **at least one symptom of possible cardiac origin** (breathing problems, palpitations, exercise intolerance, fatigue)

Results - Persisting symptoms

Persisting symptoms	V1 (%)*	V3 (%)*
Fatigue	53,2	57,7
Dyspnea	35,5	31,4
Loss of smell	32	27,5
Loss of taste	19	23
Cough	17,7	19,6
Cefalea	6,5	33
Nausea	1,6	3,9

* percentages are calculated from the total number of patients

Results 7- days ECG monitoring

	V1 mean ± SD	V3 mean ± SD	p
Afib, flutter	0	0,8 ± 0,7	1
SVT non-sustained	9,8 ± 2,9	15 ± 5,0	0,800
PACs	1142 ± 422,5	1278,9 ± 426,2	0,790
PACs couplets	24,9 ± 9,8	23,8 ± 8,7	**0,043**
PVCs isolated	482 ± 221,4	941 ± 545,1	0,965
PVCs couplets	2,9 ± 1,7	1,6 ± 0,03	0,674
PVCs bigeminy	2,3 ± 1,2	16 ± 11,6	0,984
VT non-sustained	0,2 ± 0,05	0,4 ± 0,09	0,127

	V1 mean ± SD	V3 mean ± SD	p
Max. HR	154,5 ± 21,6	151,7 ± 21,2	0,186
Min. HR	44,9 ± 6,2	45 ± 5,2	0,982
Mean HR	72,7 ± 8,5	72,5 ± 8,6	0,756

- No marked differences in arrhythmias occurence between V1 and V3

Results 7- days ECG monitoring

Presence of detected significant pathology **was rare:**

- One **paroxysmal atrial fibrillation** in 73-years old woman with dilated left atrium
- One **AV blockade II** with indication for implantation of the pacemaker in 71-years old man

No cardiac MRI findings of myocardial inflammation

In both cases no clear relationship to previous SARS-CoV-2 infection

Results 7- days ECG monitoring

	V1 mean ± SD	V3 mean ± SD	p
HF	341,5 ± 334,9	268 ± 266,3	**0,032**
LF	718,8 ± 433,7	646,8 ± 361	**0,024**
rMSSD	33 ± 13,9	30,6 ± 12,8	0,175
pNN50	10,8 ± 9,28	9,3 ± 8,7	0,255
SDNN	156,6 ± 40,6	156 ± 38,2	0,855
SDDN index	59,5 ± 18	55,8 ± 15,7	**0,036**
Triangle	28,5 ± 7,8	29,5 ± 8,8	0,488

During one year of follow up after COVID-19 infection we have found statistically significant changes in HF and LF bands

These parameters are mostly affected by breathing rate and are suggesting possible autonomic dysregulation (HF/LF ratio) or could be just collateral chance finding

Conclusion

- Our study **did not find an increased risk** of development of arrhythmias after severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) even in a population with high proportion of ongoing symptomatology

- Our data suggest there is no need for systematic cardiovascular screening in patients recovered from Covid -19

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Thank You for attention

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