

# Arrhythmia In Patients With PASC : Insights From The Impact-Covid-19 Cohort:



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## BACKGROUND

Arrhythmogenic complications such as postural orthostatic tachycardia (POTS) and inappropriate sinus tachycardia (IST) are known sequelae in patients affected by Post-Acute COVID-19 Syndrome (PACS). Bradycardia, heart block and non-sustained ventricular tachycardia (NSVT) have also been reported

## OBJECTIVES

- 1) Examine the prevalences and types of arrhythmias
- 2) Identify factors associated with PASC-related arrhythmias

## METHODS

IMPACT-QUEBEC COVID-19 is an ongoing prospective multi-center cohort enrolling adults with PASC and at least one of following cardiovascular symptoms: dyspnea, palpitation, chest pain and dizziness, in Quebec, Canada.

All patients completed a Bateman lean test and a resting ECG. A 24-hour Holter was performed in patients with palpitations.

A PASC-related arrhythmia (**composite event**) was defined as the occurrence of one of following CV abnormalities: **postural orthostatic tachycardia (POTS), inappropriate sinus tachycardia (IST), high-grade AV block, atrial flutter/fibrillation and non-sustained ventricular tachycardia (NSVT).**

Multivariate logistic regression was used to identify characteristics independently associated with PASC-related arrhythmia

## RESULTS

The following results were based on the initial 222 enrolled patients. The majority were females (79%), Whites (81%) with a mean age of 45.4 years. The mean duration between COVID-19 infection and enrollment was 297 days.

Ninety-one patients (41%) had at least one emergency room (ER) visit for COVID-19 infection and 178 patients (80%) complained of palpitations. One hundred and sixteen patients (52.2%) had arrhythmia: POTS (23.4%), IST (26.1%), AV block (0.9%), atrial fibrillation/flutter (1.3%) and NSVT (1.8%).

ER visit was associated with a two-folds increase in risk of PACS-related arrhythmia (odds ratio (OR):2.20 (95 % confidence intervals (CI): 1.1,4.5). Palpitations were highly associated with PASC-related arrhythmia (OR: 33.2 CI:4.0, 278.7).

Table 1. Characteristics of patients with and without the composite event

Variable	All cohort (N=222)		Patients with composite event (N=99) (45%)		Patients without composite event (N=123) (55%)	
	N =		N =		N =	
Sex, n (%)	222		99		123	
Male		60 (27.03)		20 (20.20)		40 (32.52)
Female		162 (72.97)		79 (79.80)		83 (67.48)
White race, n (%)	210	180 (85.71)	95	81 (85.26)	115	99 (86.09)
Age at baseline (years), mean (SD)	222	45.41 (11.92)	99	43.79 (10.74)	123	46.72 (12.69)
Duration between COVID-19 infection and enrollment (days), mean (SD)	220	296.87 (157.22)	97	287.71 (160.35)	123	304.09 (154.99)
Admitted to ER for COVID infection, n (%)	221	91 (41.18)	98	50 (51.02)	123	41 (33.33)
Palpitations, n (%)	222	178 (80.18)	99	96 (96.97)	123	82 (66.67)

Table 2. Palpitations and composite event

Sensitivity	0.9687
Specificity	0.3254
Positive predictive value	0.5225
Negative predictive value	0.9318

Table 3. ER admission and composite event

Sensitivity	0.5158
Specificity	0.6667
Positive predictive value	0.5385
Negative predictive value	0.6462

## CONCLUSIONS

**POTS, IST, bradycardia, heart block and NSVT was frequent in patients with PASC with palpitation. COVID-19 infection requiring ER admission is associated with an increased prevalence of the composite event. Our findings suggest that we should have a low threshold to screen for POTS, IST and other arrhythmias in patients who have symptomatic palpitations and a history of ER admission related to a COVID-19 infection.**

## DISCLOSURES

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