

Common symptoms of outpatient COVID-19 compared to non-COVID Cases: A prospective epidemiologic study in a major US metropolitan area

Jessica K. Fairley^{1,2}, Kaitlin R. Taibl², Taylor Landay², Amy C. Sherman¹, Henry M. Wu¹, Matthew H. Collins¹

¹Emory University School of Medicine, Atlanta, GA, ²Emory Rollins School of Public Health, Atlanta, GA, USA

Introduction

- 2019 novel coronavirus (COVID-19) pandemic has evolved from a cluster of cases in China to 35 million cases and 1 million deaths worldwide
- Majority of COVID-19 cases comprised of non-critically ill individuals
- Clinical profile for *mild* COVID-19 has been less well described, especially in comparison to non-COVID cases
- Interest in distinguishing COVID-19 cases based on key symptomology

Objective: To identify differentiating clinical and epidemiologic features of mildly symptomatic adults with COVID-19

Methods

- Recruited symptomatic adults from Emory Healthcare COVID-19 screening clinics in Atlanta, Georgia from March 18 to June 16, 2020
- Interview-based questionnaires
- Nasopharyngeal swabs tested for SARS-CoV-2 by RT-PCR.
- Convalescent serum (13-74 days post symptom onset) from subset of participants tested by an IgG ELISA.
- Assay: Indirect, antigen-coating ELISA to detect IgG antibodies binding to the receptor binding domain (RBD) of the SARS-CoV-2 spike protein
- Descriptive and χ^2 analyses performed to determine the characteristics of COVID-19 cases compared to patients who tested negative.

Results

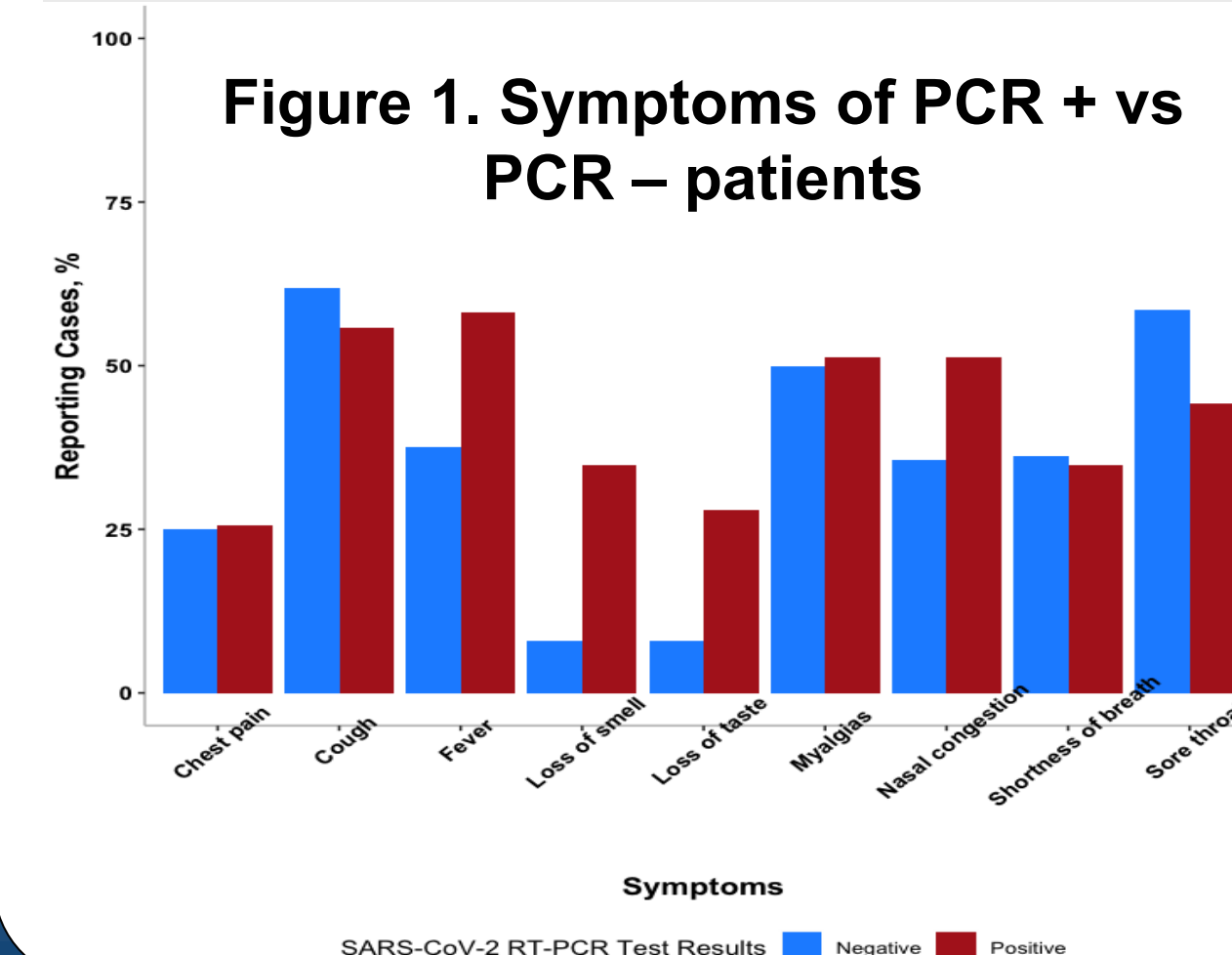
Table 1. Demographic & clinical descriptors

Characteristic	Positive PCR (n=43)	Negative PCR (n=152)	Total n=195	P-value
Sex, n (%)				
Female	27 (63)	102 (67)	129 (66)	0.60
Age (years), mean (SD)	44 ± 15	45 ± 15	45 ± 15	0.70
Race / Ethnicity, n (%)				
White, non-Hispanic	22 (51)	79 (52)	101 (52)	0.47
Black non-Hispanic	12 (28)	43 (28)	55 (28)	
Hispanic or Latino	5 (11)	8(5)	13 (7)	
Asian	4 (9)	13 (9)	17 (9)	
Other	0	3(2)	3(1.5)	
Co-morbidity				
Any medical condition	25 (58)	91 (60)	116 (60)	0.83
Diabetes	4 (9)	10 (7)	14 (7)	0.54
CVD	1 (2)	7 (5)	8 (4)	0.51
High cholesterol	5 (11)	24 (16)	29 (15)	0.50
Hypertension	9 (21)	40 (26)	49 (25)	0.47
Asthma	4 (9.3)	19 (13)	23 (12)	0.57
Day of PCR test				
Mean (SD)	4 ± 3	6 ± 5	6 ± 8	0.13
Median (range)	3 (1, 20)	3 (1, 60)	3 (1, 60)	
Healthcare worker, n (%)	19 (44)	72 (47)	91 (47)	0.71
Contact with confirmed COVID-19, n (%)	22 (51)	57 (38)	79 (41)	0.12

Results

Table 2. Common symptoms of cases vs non-COVID-19

Symptoms	Positive PCR	Negative PCR	Crude OR (95% CI)
Fever	25 (58)	57 (38)	2.3 (1.1, 4.5)
Cough	24 (56)	94 (63)	0.8 (0.4, 1.5)
Nasal congestion	22 (52)	54 (37)	1.9 (0.95, 3.8)
Chest pain	11 (26)	38 (25)	1.0 (0.5, 2.2)
Rhinorrhea	8 (20)	39 (29)	0.6 (0.3, 1.4)
Shortness of breath	15 (35)	55 (37)	0.9 (0.5, 1.9)
Sore throat	19 (44)	89 (59)	0.5 (0.3, 1.1)
Fatigue	29 (71)	88 (59)	1.7 (0.8, 3.6)
Diarrhea	13 (30)	31 (21)	1.7 (0.8, 3.6)
Rash	1 (3)	5 (4)	0.7 (0.08, 6.4)
Joint pains	19 (44)	45 (30)	1.8 (0.9, 3.7)
Loss of smell	15 (37)	12 (8)	6.6 (2.8, 15.8)
Diminished taste	12 (30)	12 (8)	4.7 (1.9, 11.6)



Results

- 35% of COVID-19 cases had syndrome of fever AND cough
- Statistically significantly more frequent than negative PCR: **OR 2.6 (1.3, 5.2)**
- Of the 48 participants : 8/10 PCR-positive cases and 1/38 PCR-negative cases tested positive for SARS-CoV-2-specific IgG

Conclusions

- No syndromic patterns pathognomonic for COVID-19
- Alterations of taste and smell associated with COVID-19
- BUT not sensitive enough to differentiate COVID-19 in early illness as 70% of symptomatic cases did not have any change in taste or smell
- Exposure to COVID-19 not associated with positive PCR test
- Cases were not more likely to be healthcare workers
- Good negative predictive value of PCR

Symptoms alone cannot differentiate COVID-19 from other illnesses highlighting the critical need for widely available and highly sensitive and specific diagnostic tests

Funding: Emory Planetary Health and Infectious Diseases Synergy Award; Rollins School of Public Health Global Field Experience Award; NIH/NIAID T32AI074492