Post-COVID Syndrome: Incidence of Post-COVID-19 Symptoms Affecting Outpatient Surgical Outcomes

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INTRODUCTION

"Long COVID", a phrase coined to describe symptoms of SARS CoV-2 infection that remain present beyond acute viral recovery stages, is being investigated among populations globally (Greenhalgh, et al., 2020). Symptoms attributed to "Long COVID'', such as fatigue, breathlessness, joint pain, chest pain, psychological distress, and several others, are those that continue ≥ 3 weeks from the start of initial infection (Halpin, et al., 2021). Incidence of "Long COVID" in patients recovering from SARS CoV-2 infection has been reported with wide variation, but studies show it could be as high as 87.4% (Carfi, et al, 2020). One of the key difficulties with "Long COVID" is the ability to diagnose it in clinical practice since patients will test negative for SARS CoV-2 via antigen PCR beyond the acute viral recovery stage (Raveendran, 2021).

RESEARCH GOAL

At University Medical Center in Lubbock, Texas, chart review data from the Post Anesthesia Care Unit and Outpatient Surgery was examined. We aimed to see whether prior COVID infections in individuals lead to an increase in the incidence of unanticipated outcomes (i.e., general hospital or ICU admissions) during or after an outpatient surgical procedure.

METHODS

• Among patients who underwent outpatient surgery at UMC Lubbock between 01/01/2021 and 05/31/2021, patients were identified (n=81) who stated during pre-operative assessment that they were previously diagnosed with SARS CoV-2 (mean=12.8 weeks prior).

• All other patients who underwent outpatient surgery served as the control group (n=4889).

• Statistics were computed using Rstudio, a significance level of 0.05, two-sided pvalues, and no adjustments for multiple comparisons. The Spearman correlation was used to test for association between ordinal level variables and Fisher's test was used test for association between binary categorical variables.

RESULTS

	Control Patients (n = 4889)	Covid Patients (n = 81)	SMD	P Value
Age	43.48 (22.35)	46.83 (18.44)	0.1631	0.111
Sex			0.1822	0.132
Female	2458/4889 (50.3)	48/81 (59.3)		
Male	2430/4889 (49.7)	33/81 (40.7)		
NA	1/4889 (0.0)	0/81 (0.0)		
Patient Type			0.3243	0.164
Observation	1260/4889 (25.8)	12/81 (14.8)		
OP Surgery	3569/4889 (73.0)	69/81 (85.2)		
NA	1/4889 (0.0)	0/81 (0.0)		
OP Ancillary	46/4889 (0.9)	0/81 (0.0)		
OP Emergency Center	1/4889 (0.0)	0/81 (0.0)		
Outpatient in a Bed	10/4889 (0.2)	0/81 (0.0)		
PreAdmit Inpatient	1/4889 (0.0)	0/81 (0.0)		
PreAdmit Outpatient	1/4889 (0.0)	0/81 (0.0)		
Outcome			0.1073	0.327
0 (Normal course)	4866/4889 (99.5)	80/81 (98.8)		
1 (General hospital admission)	18/4889 (0.4)	1/81 (1.2)		
2 (ICU admission)	5/4889 (0.1)	0/81 (0.0)		
ASA			0.2786	0.745
1	596/4889 (12.2)	9/81 (11.1)		
2	2299/4889 (47.0)	43/81 (53.1)		
3	1830/4889 (37.4)	29/81 (35.8)		
4	103/4889 (2.1)	0/81 (0.0)		
5	6/4889 (0.1)	0/81 (0.0)		
NA	55/4889 (1.1)	0/81 (0.0)		

Table 1. Summary table: Post-COVID group (n = 81) and Control group (n = 4889) variables that we gathered from patient review data.

	Female (n = 48)	Male (n = 33)	SMD	P Value
Patient Type			0.0159	1.000
OP Surgery	41/48 (85.4)	28/33 (84.8)		
Observation	7/48 (14.6)	5/33 (15.2)		
Age (years)	47.50 (16.74)	45.85 (20.91)	0.0872	0.707
ASA			0.3761	0.284
1	5/48 (10.4)	4/33 (12.1)		
2	29/48 (60.4)	14/33 (42.4)		
3	14/48 (29.2)	15/33 (45.5)		
Unexpected Outcome	1/48 (2.1)	0/33 (0.0)	0.2062	1.000
Elapsed Time	11.25 (5.90)	15.24 (10.34)	0.4741	0.051
Covid Severity			0.088	1.000
Asymptomatic	34/48 (70.8)	24/33 (72.7)		
Hospitalized	4/48 (8.3)	2/33 (6.1)		
Respiratory	10/48 (20.8)	7/33 (21.2)		

Table 2. Sex differences in Post-COVID group

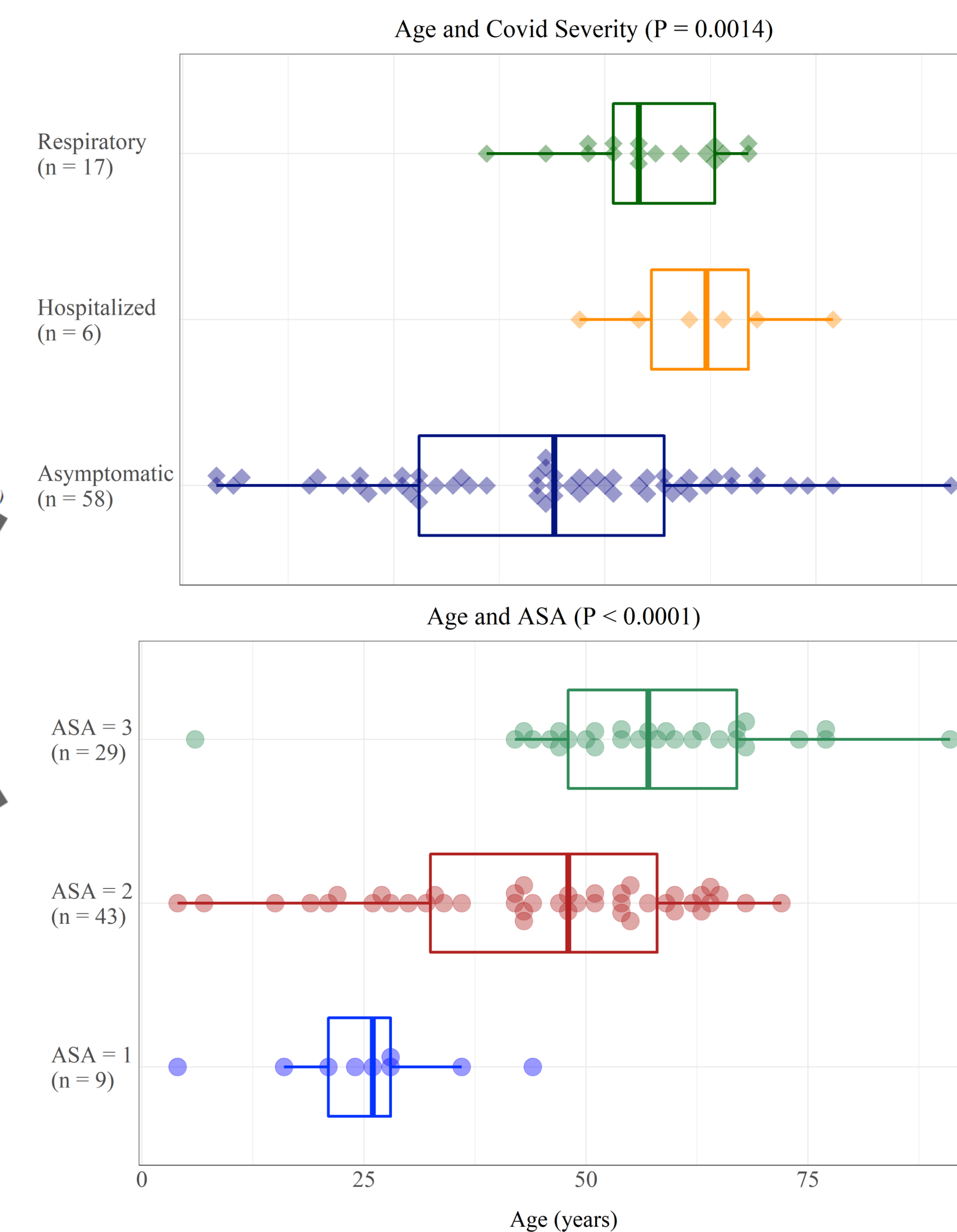|	Covid Patients (n = 81)
Patient Type	
OP Surgery	69/81 (85.2)
Observation	12/81 (14.8)
Gender	
Male	33/81 (40.7)
Female	48/81 (59.3)
ASA	
1	9/81 (11.1)
2	43/81 (53.1)
3	29/81 (35.8)
Covid Severity	
Asymptomatic	58/81 (71.6)
Hospitalized	6/81 (7.4)
Respiratory	17/81 (21.0)
Age	46.83 (18.44)
Unexpected Outcome	1/81 (1.2)
Elapsed Time	12.88 (8.19)

Table 3. Post-COVID patient (n = 81) breakdown

Figure 1. Box plot representing Age and Covid Severity (P=0.0014)

Figure 2. Box plot representing Age and ASA classification (P<0.0001)

LIMITATIONS

*We are limited by the way that we listed symptomology in broad categorical ways (asymptomatic, respiratory, hospitalization) rather than compiling individual symptoms.

*70% of our patients who had been infected with SARS CoV-2 were asymptomatic during their course of infection.

*The mean age of our Post-COVID patients was 47.5 and 45.8 for female and male, respectively. Looking for these trends among older populations may yield important results.

FUTURE DIRECTION

Evidence surrounding the Long COVID syndrome are evolving. While data from this small sample did not support a relationship between SARS CoV-2 and unanticipated hospitalization during or after outpatient surgery, the data suggests men are more likely than women to elect outpatient procedures than women following infection with SARS CoV-2. This information would allow pre-operative assessment planning to better identify patient care during the ambulatory surgical experience. We did not attempt to measure reported fatigue, breathlessness, joint pain, chest pain, psychological distress as factors emerging in Long-COVID and future studies should consider these variables within research metrics evaluating this growing problem.

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CONCLUSIONS

1. We did not observe a statistically significant difference in unanticipated outcomes between the COVID group (n = 1/81) and the control group (n = 18/4889) (SMD = 0.10, p = 0.32).

2. Interestingly, we did observe a statistically significant difference in the number of weeks between a patient's SARS CoV-2 infection and the outpatient surgical procedure in male (11.25 weeks) and female (15.24 weeks) (SMD = 0.47, p = 0.05).

3. There is a statistically significant relationship between patient age and severity of SARS CoV-2 infection (P = 0.0014).

4. There is a statistically significant relationship between patient age and ASA classification (P < 0.0001).