Long COVID: Myth or Reality?

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Introduction

COVID-19 is caused by infection with the novel virus of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is believed to have emerged in late 2019.

Definition - long-COVID, or post-acute sequelae of COVID-19 (PASC), or post-acute COVID-19 syndrome (PACS), is a condition that occurs in individuals with history of confirmed or probable SARS CoV-2 infection, usually 3 months after the onset of acute illness, with symptoms that last for at least 2 months and cannot be explained by alternative diagnosis.

Aim: Our aim was to review the currently available literature on the topic of long-COVID to

- investigate the prevalence
- common symptoms
- possible risk factors that predict development of long COVID.

Methods:

- five electronic databases were searched for the following
- keywords: "Long-COVID", "post acute COVID-19 syndrome" and "post-COVID condition"
- reports from cohorts who had mild to moderate acute illness and those who had severe illness but were not admitted to Intensive Care Unit (ICU) were included
- papers reporting prolonged symptoms in those with severe disease and were treated in ICU were excluded, to exclude critical illness sequelae and neuromyopathies as confounders.

Table 1 Summary of results

Study ID	Study population / design	Symptoms Reported	Proposed risk factors for long COVID
Carole H. Sudre et. al.; April 2021; Nature Medicine	Patents treated in community; n = 4182; 28.5% M; Median age = 42	Fatigue, headache , dyspnoea hoarse voice, myalgia, anosmia fever	>5 symptoms in the first week of illness (OR 4.60 (95% CI 3.28); increasing age (29.2%); number of symptoms during the first week (16.3%)
Logue J.K. et al.; February 2021; Jama Network Open	median 169 days post infection n=177; 42.9%M; mean age =48	fatigue (13.6%); loss of smell/taste (13.6%)	symptomatic during the acute illness were more likely to develop persistent symptoms
Carvalho-Schneider C et al.; Feb 2021; Journal of Clinical Microbiology and Infection	Day 30 and Day 60 follow-up n=150; 44% M; mean age = 49	D30 –anosmia- 27.8%; CP-18%; GI problems-17.3%; D60 –anosmia- 22.7%; arthralgia-16.3%; weight loss- 17.2%	age 40-60; hospital admission at symptom onset; severe COVID-19 infection
Moreno-Pérez O, Merino E, Leon-Ramirez JM, et al.; Jan 2021; J Infection	n=277; 52.7% M; median age =62	dyspnoea , fatigue, anosmia/dysgeusia in younger age <65 yr 24.9% vs >65 yr 13.5%, neurological symptoms -11.9%	In severe pneumonia, only opacities of lung surface on X-rays; Higher HR at admission
Huang C, Huang L, Wang Y, et al.; January 2021; Lancet	n=1733; 52% M; median age =57; Comorbidities: HTN -29%; DM -12%; CVD -7%	fatigue or muscle weakness 63%; sleep difficulties 26%; anxiety or depression 23%	age positively associated with diffusion impairment 27%; higher fatigue or muscle weakness 17%; age did not affect prevalence of anxiety and depression
Venturelli S, Benatti, S, Casati, S et al.; Jan 2021; Epidemiology & Infection	Hospitalised patients; median time post d/c - 81 days; n=767; 67.14% M; median age = 63	New onset moderate/severe fatigue – 145; "not feeling fully recovered" - 257 (33.5%); dyspnoea - 228 patients (29.8%)	Women - twice as likely to suffer from fatigue
Darcis et al.; July 2021; International Journal of ID	Hospitalised patients; 1, 3 & 6 months f-up; n = 199; 63.3% M; mean age = 60.5	exertional dyspnoea; fatigue; dry cough; chest pain	low DLCO (56.6%) persistent symptoms vs normal DLCO (31.8%); hospitalization duration and ICU care / mechanical ventilation NOT associated with symptoms
Kozak et al., August 2021; MDPI	tertiary care center f/up; n=223; 50.3% M; mean age = 48.6	fatigue and weakness- 50%; anxiety - 35.5%; anosmia- 30.6%; SOB- 27.4%	> in admitted to hospital; 61% - women; no significant differences in age, comorbidities, WBC & differential count
Swampna Mandal et al.; Nov 2020; BMJ	Hospitalised patients; median 54 days post d/c; n=384; 62% M; mean age = 59.9	Fatigue; poor sleep quality; breathlessness; cough	Recovery 92% in those with no comorbidities vs 85% (IQR 80-100) with => comorbidities HTN, DM, asthma and/or COPD, CKD, IHD

Results & Discussion:

- electronic database searches yielded 369 results
- 9 articles were included for final analysis after removing duplicates, review articles, commentaries and letters to the editor.
- discrepancies in symptoms, their prevalence, and possible risk factors of long-COVID noted (Table 1).

Conclusions:

All studies reported a variable prevalence of persistent symptoms following acute COVID-19 infection
fatigue, anosmia and dyspnoea were the most frequently reported
long-COVID is more likely to develop with increasing age
development of long-COVID may be predicted with some degree of certainty in those who had a higher number of symptoms in the acute phase of illness and in those who had severe illness, including severe pneumonia requiring oxygen therapy or ICU care.