Treating Long COVID: Clinician Experience with Post-Acute COVID-19 Care

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cdc.gov/coronavirus
As reports of long-term COVID-19 symptoms emerged, the need for scientific research about long COVID has intensified.
Long COVID may overlap with other complications of acute COVID-19 illness making it hard to define.

*Multisystem inflammatory disorder, Guillain-Barre, among others
**Post-Intensive Care Syndrome
Long COVID often presents as reported persistent severe fatigue, headaches, and brain fog (mild subjective cognitive impairment) >4 weeks after acute illness and may be independent of acute illness severity.

Greenhalgh et al., BMJ. 2020
Three quarters of patients hospitalized with COVID-19 had at least one ongoing symptom 6 months after their acute illness.

Symptoms among 1,733 patients after hospitalization for COVID-19, China

<table>
<thead>
<tr>
<th>Any symptoms</th>
<th>76%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue or muscle weakness</td>
<td>63%</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>26%</td>
</tr>
<tr>
<td>Sleeping difficulties</td>
<td>26%</td>
</tr>
<tr>
<td>Anxiety or depression</td>
<td>23%</td>
</tr>
<tr>
<td>Hair loss</td>
<td>22%</td>
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<tr>
<td>Smell disorder</td>
<td>11%</td>
</tr>
<tr>
<td>Palpitations</td>
<td>9%</td>
</tr>
<tr>
<td>Joint pain</td>
<td>9%</td>
</tr>
</tbody>
</table>

Huang et al., Lancet. 2021
One in five patients not requiring supplemental oxygen during hospitalization had decreased lung function after 6 months.

Pulmonary function and 6-minute walk test distance results among COVID-19 hospitalized patients

<table>
<thead>
<tr>
<th></th>
<th>Not requiring supplemental oxygen</th>
<th>Requiring supplemental oxygen</th>
<th>Requiring HFNC, NIV, or IMV</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 minute walk test distance &lt;LLN</td>
<td>23%</td>
<td>24%</td>
<td>29%</td>
</tr>
<tr>
<td>DLCO &lt;80% predicted</td>
<td>22%</td>
<td>29%</td>
<td>56%</td>
</tr>
</tbody>
</table>

LLN = lower limit of normal; DLCO = diffusion capacity for carbon monoxide

Huang et al., Lancet. 2021
Prolonged symptoms are common among patients with mild COVID-19 disease not requiring hospitalization.

- Survey of patients in a post-COVID 19 clinic in France\(^1\) and telephone surveys in the Faroe islands\(^2\) and Switzerland\(^3\)
  - 35-54% of patients with mild acute COVID-19 had **persistent symptoms after 2-4 months**
  - 50-76% of patients **reported new symptoms** not present in their acute COVID-19 illness or **symptoms that resolved and reappeared**\(^1\)
  - 9% reported prolonged symptoms as **severe**\(^2\)

1. Salmon-Ceron et al., J Infect. 2020
2. Petersen et al., Clin Infect Dis. 2020
More than one quarter of patients **developed new neurological symptoms** after their acute COVID-19 illness.

COVID-19 symptoms among 70 non-hospitalized patients, France

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Acute symptoms</th>
<th>Persistent symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue or muscle weakness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensory disturbances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest pressure or pain</td>
<td></td>
<td></td>
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<tr>
<td>Dyspnea</td>
<td></td>
<td></td>
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<tr>
<td>Palpitations/tachycardia</td>
<td></td>
<td></td>
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<tr>
<td>Headaches</td>
<td></td>
<td></td>
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<tr>
<td>Cognitive neurological disorders</td>
<td></td>
<td></td>
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<tr>
<td>Problems with taste or smell</td>
<td></td>
<td></td>
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<tr>
<td>Other neurological signs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Salmon-Ceron et al., J Infect. 2020
Key points

- New or persistent symptoms (lasting >4-6 months) may occur among patients with COVID-19 regardless of acute episode severity.

- In addition to respiratory symptoms, patients may present with fatigue, sleeping difficulties, depression, anxiety, and neurological dysfunction.

- Baseline and serial comprehensive reviews of systems and physical exams may better document possible long COVID manifestations and improve management.

- There is still a lot we do not understand, and empathy toward patients experiencing long COVID is fundamental.
CDC is involved in a multipronged approach to understand and characterize long COVID.

- Cohort studies
- Administrative data and chart reviews
- Patient surveys
- Clinician engagement
- Partnering with other agencies and organizations
- Public and clinical messaging


Resources

- CDC webpages on long COVID:
  - For the general public: https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html

- NIH Workshop on Post-Acute Sequelae of COVID-19
  - Day 1: https://videocast.nih.gov/watch=38878
  - Day 2: https://videocast.nih.gov/watch=38879
References


Thank you

CDC COVID-19 Healthcare Systems and Worker Safety Task Force
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Disclaimer

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).

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