The Urgent Need to Develop a Comprehensive Long COVID Diagnostic Testing System to Identify Potential Causative Factor or Factors in Long Hauler Patients

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Quotation: "The development of a comprehensive diagnostic testing program for COVID-19 long hauler patients would enable us to categorize a specific patient based upon causative agent or agents and clinical symptoms".

The US National Institutes of Health (NIH) Director Dr F. Collins has described COVID patients who fail to fully recover over a period of a few weeks as being designated as having "post acute sequelae of SARS CoV-infection [1]. The investigators at the NIH noted that symptoms observed in these post acute sequelae encompassed: fatigue, shortness of breath, brain fog, sleep disorders, intermittent fevers, gastrointestinal problems, anxiety and depression [1].

The NIH investigators further noted that those patients manifesting post acute sequelae of SARS CoV-2 infections experiences had a persistence of these symptoms which lasted for many months [1]. In some cases of post acute sequalae of SARS CoV-2 the symptoms were mild, and in other cases the symptoms were severe and the patients that experienced these severe symptoms were incapacitated [1]. The NIH investigators also noted that in some of these post acute sequalae of SARS CoV-2 patients there appeared brand new symptoms after the initial COVID infection [1].

The United States CDC had further noted that symptoms that occurred after the initial acute infection post acute COVID infection and persisted for four or more weeks post infection. The CDC thus placed the aforementioned cases under the designation of long COVID [1].

The British National Health have taken the definition of long COVID to connote symptoms that occur during the initial COVID infection and linger on for a period of 12 weeks and beyond and which additionally cannot be ascribed to an alternative diagnosis [1].

There are several theories that have put forth to explain long COVID. These theories include: a) Dormant viruses, b) Persistent inflammation, c) Autoimmunity, d) Persistent viral infection [2].

The theory of dormant viruses puts forth the notion that an infective process caused by COVID-19 could reactivate dormant viruses such as the Epstein-Barr virus and the Cytomegalovirus [2].

The theory of persistent inflammation suggests that perhaps that when immune responses persist there will be a continued inflammation that persists after the initial surge [2]. In this theory of persistent inflammation, a patient with pre-existing chronic inflammatory conditions are at higher risk for long COVID. The reason for this is because the normal shut off systems that normally control or shut off inflammation fail to stop the inflammatory process [2].

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The theory of autoimmunity has put forth the idea that the COVID-19 virus triggers autoimmune reactions [2]. This theory was based upon patient based studies where it was observed that none of the patient had had pre-existing autoimmune disease prior to their CO-VID-19 infection [2].

The theory of persistent viral infection suggests that COVID-19 virus can persist within the patient beyond the initial acute COVID-19 viral infection [2,3]. This theory has been supported by autopsy studies in patients who had expired long after they had been initially infected with COVID -19, The autopsies of these patients found that COVID virus was present in varied tissue specimens (i.e. lung, heart, brain, gut, etc) [2,3].

Currently there isn't any comprehensive clinical, immunological, or molecular based systems for profiling abnormalities associated with long haul patients [4].

Thus, in order to classify long hauler COVID-19 patients based upon specific targeted organs and symptoms, it is absolutely essential that a comprehensive diagnostic testing program be developed. The diagnostic program would focus upon identifying a causative factor or the presence of multiple causative factors in each of these long COVID or long hauler patients.

The development of a comprehensive diagnostic testing program for COVID-19 long hauler patients would enable us to categorize a specific patient based upon causative agent or agents and clinical symptoms. This would lead to the development of, better treatment regimens to address the therapeutic needs of the specific long hauler patients.

Bibliography

1. https://en.wikipedia.org/wiki/Long_COVID

2. Shaw J. "The Causes of Long COVID". Harvard Magazine (2021).

3. Ollar RA. "COVID-19 long Haulers and COVID-19 Vaccination". *EC Pulmonary and Respiratory Medicine* 10.5 (2021): 27-28.

4. Sidharthan C. "Why fatigue from long COVID goes beyond simply feeling tired". News Medical Life Sciences (2022).

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