

Are mRNA Covid 19 vaccines safe in Long Covid patients? A Health Care Workers perspective

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Abstract

Introduction: Long Covid patients may have concerns about the impact of mRNA vaccines on their symptoms.

Method: A short questionnaire was sent to users of a long covid service supporting an NHS Trust staff in Wigan 2 weeks following the conclusion of a mRNA vaccine first dose roll out. The questionnaire explored acceptance and compliance with the vaccine and any change in the symptoms at least 2 weeks following the vaccination.

Results: 77 HCW were offered the vaccine. 10 respondents declined mainly because of concerns regarding worsening long covid symptoms. 67% of respondents did not experience any change in symptoms whilst 21% experienced improvement of symptoms. 12% experienced worsening of symptoms.

Conclusion: mRNA vaccines can influence long covid symptoms. However, patients seemed to be twice more likely to experience improvement than worsening of symptoms.

Keywords: long covid / mRNA vaccine

Sceptical attitudes towards Covid 19 vaccines effectiveness and/or safety are currently a major risk to global health. However, not every person declining Covid 19 vaccination is an irrational conspiracy theorist (1). Patients suffering from specific conditions may have justified concerns that in the absence of safety data for their specific health problems, they may find it difficult to appraise the risks associated with the vaccination in their condition.

Patients suffering from long term complications of Covid 19 have coined the term long covid to describe their debilitating illness (2). Many clinicians feel that long covid complexity may reflect different pathological processes (3) with respiratory symptoms being primarily secondary to tissue damage whilst fatigue and its associated post exertional symptoms such as physical pain or brain fog resulting from a dysregulated immune response (4).

Two mRNA vaccines developed by Pfizer Biontech and Moderna have demonstrated impressive levels of immunity against SARS CoV-2 virus in randomised controlled trials (5,6). This relatively new technology had several advantages that made it one of the earliest vaccines to be developed, tested, scaled up and subsequently approved for use all over the world. The potency of the immune response is another significant advantage of mRNA vaccine as suggested by previous in vitro and animal experiments (7).

This potency is naturally a positive characteristic especially when mRNA vaccine technology is used against an easily transmissible and potentially lethal disease. However, for

patients suffering from long covid, such a strong immune response could be a cause for concern.

As vaccination programmes against SARS CoV. 2 Virus are rolled out around the world, long covid patients face a difficult decision as no data is available about the impact of the mRNA vaccines on their condition. In the UK, long covid is not considered to be a contraindication for vaccination (8); however, in the absence of any safety data for this group of patients, it is very difficult to provide an informed opinion about the risk.

Methods

In the summer of 2020, Wrightington, Wigan and Leigh NHS Trust Hospitals established a dedicated service for staff suffering from long covid. As Health Care Workers (HCW) in the UK were prioritised for vaccination, Pfizer Biontech Vaccine was offered to all Hospital employees with the first dose provided between end of December 2020 and end of January 2021.

A survey questionnaire was sent to all long covid staff members 2 weeks following the conclusion of the first dose roll out. The e-mail addresses were obtained from the long covid clinic data base. This short questionnaire evaluated the rate of acceptance of the vaccine, reasons for declining, immediate side effects and any persistent change of the long covid symptoms following the vaccination. The survey was approved by the information governance department.

Results

The questionnaire was sent to 117 HCW. Out of 83 responses, 77 subjects were offered the vaccine (age range: 18 - 65 with only 7 male respondents).

10 HCW declined having the vaccine (13 %) with 5 of them citing concerns about worsening symptoms as the main reason. Out of 67 HCW receiving the vaccine 48 (72%) had immediate but self-limiting side effects.

Fatigue, shortness of breath and anxiety were the most common symptoms of long covid our cohort originally had (75%, 53% and 18% respectively). Several weeks following vaccination, 45 subjects reported no change (67%) in symptoms. Fourteen (21%) subjects reported improvement of one or more of their symptoms (8 of them experienced improving respiratory symptoms, 4 improving fatigue, 5 improving anxiety and 2 mentioned improving other symptoms). Eight subjects (12%) reported worsening symptoms including fatigue (3 subjects), respiratory (1 subject), anxiety (2 subjects). Two subjects experienced worsening of other symptoms.

Discussion

When offered vaccination, our long covid patients showed higher rates of compliance (86%) compared to the general population (9). However, five patients declined the vaccine because of their concerns about worsening symptoms.

Despite having a small number of subjects, limitations to the survey methodology and the relatively short period following vaccination, our report is the first to comment on the response of a cohort of long covid patients to mRNA vaccination. Most of our HCWs didn't report any change in their symptoms with encouragingly 21% experiencing subjective improvement of symptoms with 10% of all participants reporting respiratory symptoms improvement. The 8 subjects reporting worsening of symptoms experienced more diverse problems with worsening fatigue the most common.

Our results were consistent with unpublished data reporting the feedback of 473 long covid social media users (10). 32% of this self-selecting population reported improvement of symptoms whilst 17% reported worsening of symptoms.

We would like to suggest two potential explanations for our findings. Comprehensive investigations for the respiratory system could be normal in some long covid patients complaining of shortness of breath (11). Dysfunctional breathing might contribute to the severity of shortness of breath (12). The confidence given to the patients from taking the vaccine may act in a positive way to reduce their anxiety and subsequently such perception of the respiratory effort.

Another potential explanation is the complex way mRNA vaccines manipulate the immune system potentially improving or worsening the already dysregulated immunity in long covid patients (4). It is encouraging to see that long covid patients are about twice as likely to experience improvement of symptoms compared to patients experiencing worsening of symptoms. We

hope that our findings may be an early source of reassurance that mRNA Covid 19 vaccines are not commonly associated with adverse effects in long covid patients.

We feel that longitudinal studies appraising long covid symptoms and immunological markers correlating the pre and post mRNA vaccines may have the potential not only to improve understanding of the main long covid pathologies but may also unlock the secrets of Chronic Fatigue Syndrome / Myalgic Encephalomyelitis (ME/CFS) as a common condition possibly sharing many of long covid characteristics.

Competing Interests

None declared

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