Low incidence and severity of SARS-CoV-2 infections in people with PCD

Pedersen ESL[1], Schreck LD[1], Goutaki M[1,2], Sara Bellu [3], Copeland F[4], Lucas JS[5,6], COVID-PCD patient advisory group[#], Zwahlen M[1], Kuehni CE[1,2]

1, Institute of Social and Preventive Medicine, University of Bern, Bern, Switzerland; 2, Paediatric Respiratory Medicine, Children's University Hospital of Bern, University of Bern, Switzerland; 3, Associazione italiana Discinesia Ciliare Primaria Sindrome di Kartagener Onlus, Italy, saradcp@virgilio.it ; 4, PCD support UK, London, UK, fiona.copeland@stonac.co.uk ; 5, Primary Ciliary Dyskinesia Centre, NIHR Biomedical Research Centre, University Hospital Southampton NHS Foundation Trust, Southampton, UK; 6, University of Southampton Faculty of Medicine, School of Clinical and Experimental Medicine, Southampton, UK.

Sara Bellu, Associazione Italiana Discinesia Ciliare Primaria Sindrome di Kartagener Onlus Italy; Isabelle Cizeau, Association ADCP, France; Fiona Copeland, PCD support UK; Katie Dexter, PCD support UK; Lucy Dixon, PCD support UK; Trini López Fernández, Asociación Española de Pacientes con Discinesia Ciliar Primaria, Spain; Susanne Grieder, Selbsthilfegruppe Primäre Ciliäre Dyskinesie, Switzerland; Catherine Kruljac, PCD Australia Primary Ciliary Dyskinesia, Australia; Michelle Manion, PCD Foundation, USA; Bernhard Rindlisbacher, Selbsthilfegruppe Primäre Ciliäre Dyskinesie, Switzerland; Hansruedi Silberschmidt, Verein Kartagener Syndrom und Primäre Ciliäre Dyskinesie, Germany.

COVID-19 and PCD

Background

Chronic respiratory disease is a risk factor for severe COVID-19 disease, however, there is still little data on rare chronic diseases such as Primary Ciliary Dyskinesia (PCD).

Aim

We aimed to study incidence of SARS-CoV-2 and its risk factors in people with PCD between May 2020 and May 2022. We also aimed to describe severity of COVID-19 disease and study factors associated with severity.

Methods

COVID-PCD is an international participatory study set up in collaboration with PCD patient support groups worldwide (www.covid19pcd.ispm.ch). It includes persons of any age worldwide with a confirmed or suspected diagnosis of PCD.

Data collection

Participants completed a bseline and weekly follow-up questionnaires anonymously (figure 1)

Definitions

- A SARS-CoV-2 infection reported in the baseline or follow-up questionnaire was counted if a patient reported a positive PCR, antibody, or antigen test.
- Severity was grouped into asymptomatic, mild (e.g. mild fever or cough), moderate (e.g. high fever, cough, headache), or severe disease (treated in the ICU).

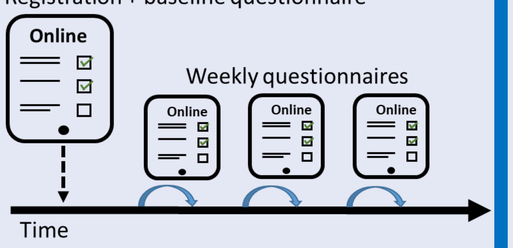

Figure 1: Data collection procedures

Statistical methods

We studied incidence rate and predictors of SARS-CoV-2 using Poisson regression with a logarithmic link function and follow-up days as offset variable and report results as incidence rate ratios (IRR). We included age, country, sex, vaccination status, and virusvariant.

We studied risk factors for self-reported severity of disease including age, sex, bronchiectasis, FEV_1, comorbidity, and vaccination status.

Collaborating PCD patient support groups

Results

728 people from 48 countries participated by May 2022. Median age: 27 years (range 0-85); 434 (60%) female. Median follow-up: 60 weeks (range 1-100)

87 (12%) reported a SARS-CoV-2 infection. Most infections were reported when the Delta and the Omicron variants were dominant (figure 2).

62 of the 87 SARS-CoV-2 infections were reported during follow-up (716 person years) with an incidence rate of 8.7 per 100 person years (95% CI: 6.8-11). Factors associated with incidence rate was age, country, and variant (figure 3).

Severity was overall mild; 12 (14%) reported asymptomatic disease, 50 (57%) reported mild, and 25 (29%) reported moderate disease. Only 4 people reported hospitalization; nobody in the ICU and nobody died. Most common symptoms were cough, runny nose, tiredness, headache and fever. We found that no factor predicted severity of disease (figure 4)

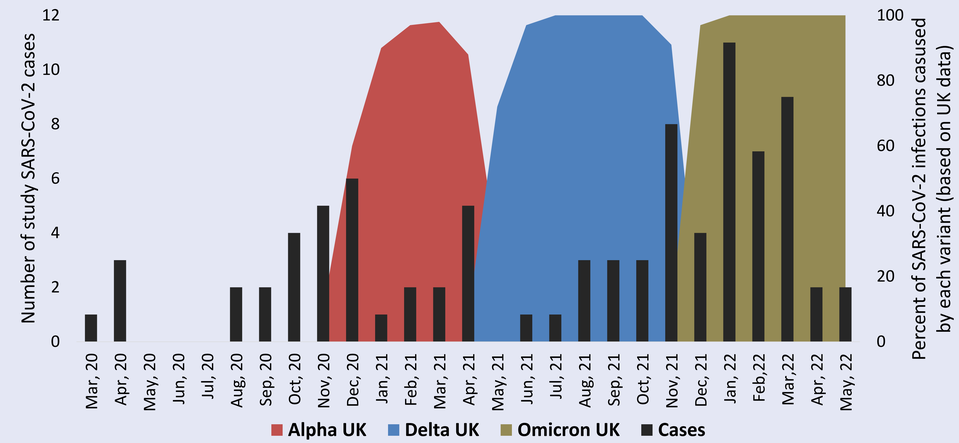

Figure 2: **Number of people infected with SARS-CoV-2 per month between March 2020 and May 2022 (left axis) and dominant SARS-CoV-2 variants (right axis)**

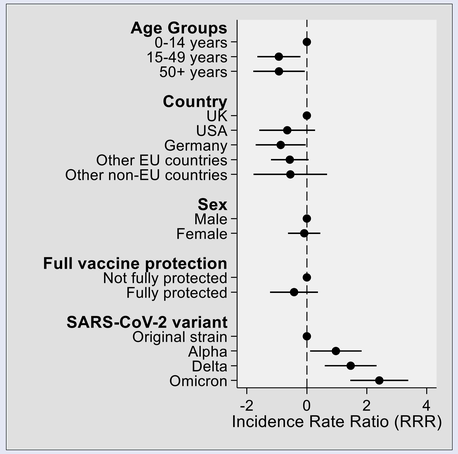

Figure 3: **Factors associated with incidence rate ratio (IRR) of SARS-CoV-2**

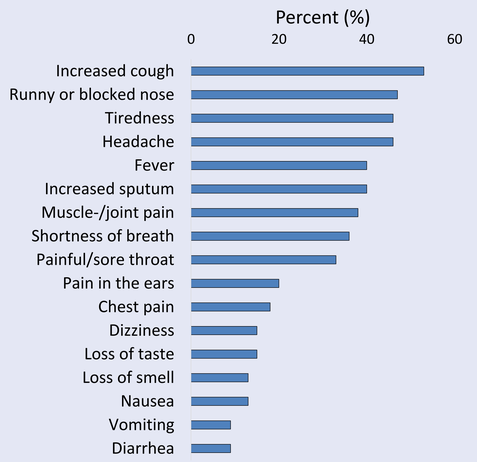

Figure 4: Reported symptoms among 87 participants with SARS-CoV-2 (in percent).

Conclusions

This is the first international participatory study following people with PCD during the COVID-19 pandemic. Incidence of SARS-CoV-2 remained low and severity overall mild.

Study website:

Contact: Eva Pedersen eva.pedersen@ispm.unibe.ch

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