Long-term Outcome of Children with COVID-19 and Treatment Evaluation in Indonesia (Locate)

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Locate Research collaboration of UI-UGM-UNAIR-UoM
Funded by PRIME LPDP
27 Lower-middle-income countries < 20 years: 
12 per cent of the reported COVID-19 cases 
39 per cent of the population

https://data.unicef.org/resources/covid-19-confirmed-cases-and-deaths-dASHBOARD/
Data in Children - Indonesia

https://covid19.go.id/peta-sebaran
Indonesian Pediatric Society Survey

FIGURE 1 | Parents’ attitude toward school reopening according to children’s education level.
Background

• Meta-analysis of long-term outcome of SARS & MERS: 28 studies, lung function abnormalities, psychological impairment and reduced exercise capacity


• Systematic review of long COVID-19 in children: 21 studies, none from LMICs, prevalence of long COVID-19 25.24%


• Unknown long-term outcomes of COVID-19 in children, daily observation in clinical settings, we see “suspected long COVID-19 or linked to post COVID-19” but hardly to define
Background

- COVID-19 is a complex multisystemic disease; several organ dysfunctions?, affect the growth and development? and mental health issues?

- Retinal complications may arise in COVID-19 patients, further follow up needed


- Nervous system involvement could be isolated, developing during COVID-19 or after its recovery, or arise in the context of a MIS-C


- Pulmonary function is rarely impaired, discrepancy between persisting respiratory symptoms and normal pulmonary function

Objectives

To systematically describe the long-term outcomes of children after COVID-19 in Indonesia, which include:

• Two-years survival rate
• The incidence and presentations of MIS-C
• The prevalence and type of comorbidities
• The incidence rate and clinical presentations of SARS-CoV-2 reinfection
• The level of specific SARS-COV-2 antibodies at 0-6 months, 6 months, 12 months, 18 months, and 24 months after COVID-19
• The occurrence, characteristics and associated features (including immunological) of “long COVID-19” in children
• The impact of COVID on the child’s health over two years following initial presentation with COVID-19:

  growth and development, mental health, lung function, cardiovascular function, renal function, microvascular disease, or endocrine problems
Methods

- Multicenter prospective study – Jakarta, Yogyakarta, Surabaya
- 2 years follow up of 200 children prospectively
- Retrospectively using questionnaire
- Dr Cipto Mangunkusumo National Center Hospital, Cempaka PHC, Senen PHC, Dr Sardjito General Hospital, Gadjah Mada University Academic Hospital, PKU Muhammadiyah Hospital, Dr Soetomo General Hospital, and Airlangga University Hospital
Methods - Prospective

- **Inclusion for case group:**
  - Children < 18 years of ages
  - Previous history of SARS-COV-2 infection
  - Asymptomatic to severe COVID-19

- **Exclusion for case group:**
  - The subject has comorbidities with palliative care or end stage

- **Control group (challenging):**
  - Healthy children
  - Without history of COVID-19
  - Will be recruited at the end of study
V0: Hospital admission / outpatient visit at the COVID-19 diagnosis

V1: Hospital discharge / outpatient visit any time between 0-6 months after COVID-19 diagnosis

V2: V1+6 months

V3: V1+12 months

V4: V1+18 months

V5: V1+24 months

Flow Chart

The subject is confirmed COVID-19 with RT-PCR.

The subject is hospitalised or getting treatment from the site

Screening

Eligible

It does not fulfill the inclusion and exclusion criteria

Consecutively enrolled based on database
### Study Procedures

#### Visit Flow Chart

<table>
<thead>
<tr>
<th>Visit</th>
<th>V0</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
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</thead>
<tbody>
<tr>
<td>Visit time (month)</td>
<td>M0</td>
<td>M0 (+6)</td>
<td>V1+6</td>
<td>V1+12</td>
<td>V1+18</td>
<td>V1+24</td>
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<tr>
<td>Informed Consent</td>
<td>●</td>
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<tr>
<td>Demographic Information</td>
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<tr>
<td>Height, Weight, and Head Circumference</td>
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<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
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<td>Vital sign</td>
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<td>Microvascular Function</td>
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<td>Neurological Function</td>
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<td>Endocrine Function</td>
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<tr>
<td>Mental Health</td>
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<td>Treatment Evaluation</td>
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</tr>
</tbody>
</table>

Weekly phone call follow up
Visit Procedures

Station 1 (A)
Registration, Baseline data, e-diary

Station 2 (B)
Inclusion exclusion & Informed Consent

Station 3A
Anthropometry, vital sign, urine collection (urinalysis, NGAL)

Station 2 (C)
History, Questionnaire (long COVID, SDQ & Peds QL)

Discharged

Station 9 (F)
Blood collection (Ab, BS, exploratory)

Station 8 (H)
Step test

A. Surveillance 1
B. MD 1
C. MD 2
D. Nurse 1
E. MD 3
F. Nurse 2
G. US technician
H. Surveillance 2

Station 4 (E)
Echo, ECG

Station 5 (B)
Spirometry

Station 6 (C)
Fundus Camera

Station 7 (G)
Vascular US

Parallel @ 30 min
Study Procedures
Website & Social Media

@locateindonesia

https://www.locatelongcovid.id
Diary Card

E-Diary Card

Tanggal
13-06-2022

Apa anak anek mengalami gejala?

Ya

Tidak

Gejala yang dirasakan:

- Demam
- Pilek
- Nyeri Dada
- Mual atau muntah
- Anosmia
- Gangguan penglihatan
- Bau
- Nyeri otot
- Kelelahan
- Penurunan keadaan

- Batuk
- Sesak
- Diare
- Nyeri perut
- Kebisingan
- Nyeri kepala
- Rambut rontok
- Nyeri sendi
- Gigi tanggal
- Lainnya

Suhu (°C)

ex: 33

Obat yang dikonsumsi

World Health Organization
Current Stage of the Study

26 April 2022

38/200
Enrolled
Confirmed Case
for Examination

Prospective

258/2483
Confirmed Cases
Enrolled for
Questionnaire

Retrospective

112/2050
Control (PCR -)
Enrolled for
Questionnaire

Preliminary Data
Acknowledgements

Indonesia
- Dwiyana Ocviyanti (OBYN)
- Nastiti Kaswandani (RESP)
- Ari Prayitno (ID)
- Rina Triasih (RESP)
- Id Crusher Lasanawati (ID)
- Irma Sri Hidayati (NUTR)
- Dominicus Husada (ID)
- Retno Ash S (RESP)
- Robby Nurhariansyah (PED)
- Andaru Dahesihdewi
- Anisa Rahmadhany (CARD)
- Fahreza Aditya Neldi
- Henny Adriani (NEFR)
- Fransiska Kalgis (PSYCH)
- Rila Sitorus (OPH)
- Rina Ladistia N (OPH)
- Dwi Octavia
- Murni Luciana Naibaho (PHC)
- Hayfa Husaen
- Edwinaditya Sekar
- Aqila Sakina Zhafira
- Rini Fajarani
- Erlin Qur'atul Aini
- Fadhilah Az Zahrah
- Donna Gultom
- Helen Malinda
- Adik Hidayat
- Ismitoipah
- Dita Rizkya
- Ichlasul Amalia
- Mia Purnama
- Melisa Ambarwati
- Karlina Hardianing

Melbourne
- Julie Bines
- Stephen Graham
- Sarath Ranganathan
- Jodie McVernon

COVID-19 Isolation Unit RSCM
- Hadiki Habib
- Fidjiadi Hiltono
- Riski Muhammad
- Naina
- Tancy Heriyantri

Dept of Pediatrics
- Aryono Hendarto
- Fatimah Syafira
- Sri Rezeki S Hadinegoro
- Hindra Irawan Satari
- Mulya R Karyanti
- Pratama Wicaksana

International Pediatric Association
- Aman B. Pulungan

COVID-19 Task Force IPS
- Piprim B Yanyuarso
- Yogi Prawira
- Anggraini Alam
- Rosalina D Roelslaini
- Hikari A Sjakti

World Health Organization

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