Post Acute Sequelae of COVID-19 (PASC)

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Objective

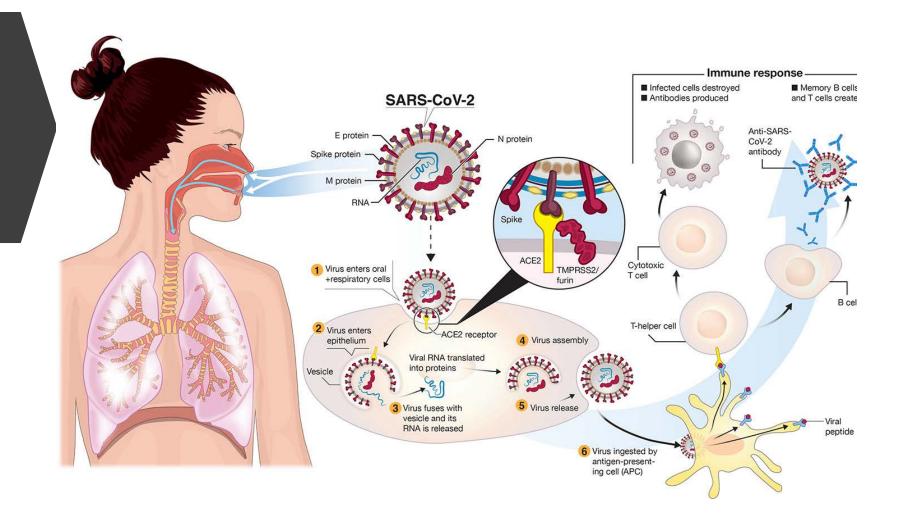
Discuss the possible pathophysiology of COVID-long haul

• Illustrate a multi-disciplinary approach to COVID-long haul patients

 Call to action to work for clinical guidelines for COVID-long haul patients

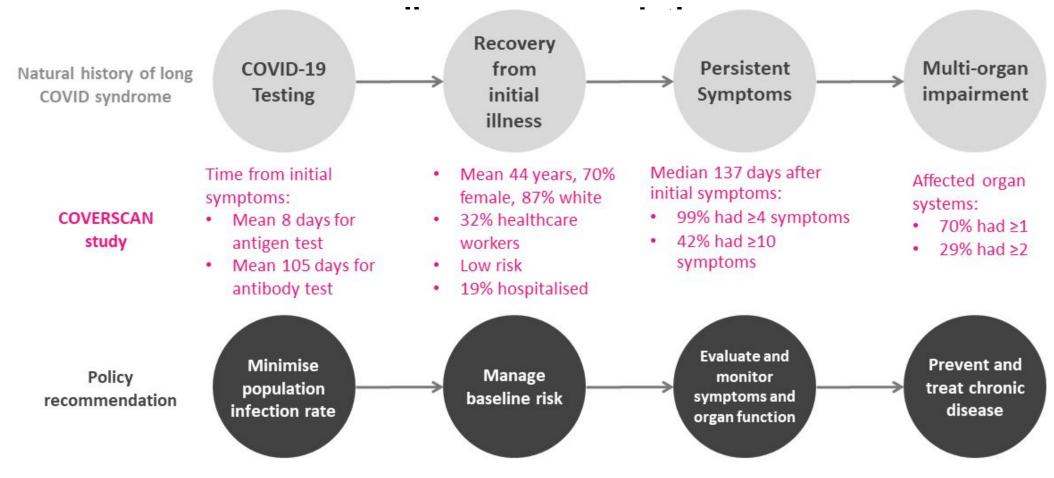
COVID-19 SARS-Co-V2

- > 177 million people infected
- Almost 4 million deaths
- 80% patients recover within 4 weeks
- < 15% require ICU stays which is over 6 weeks of medical care



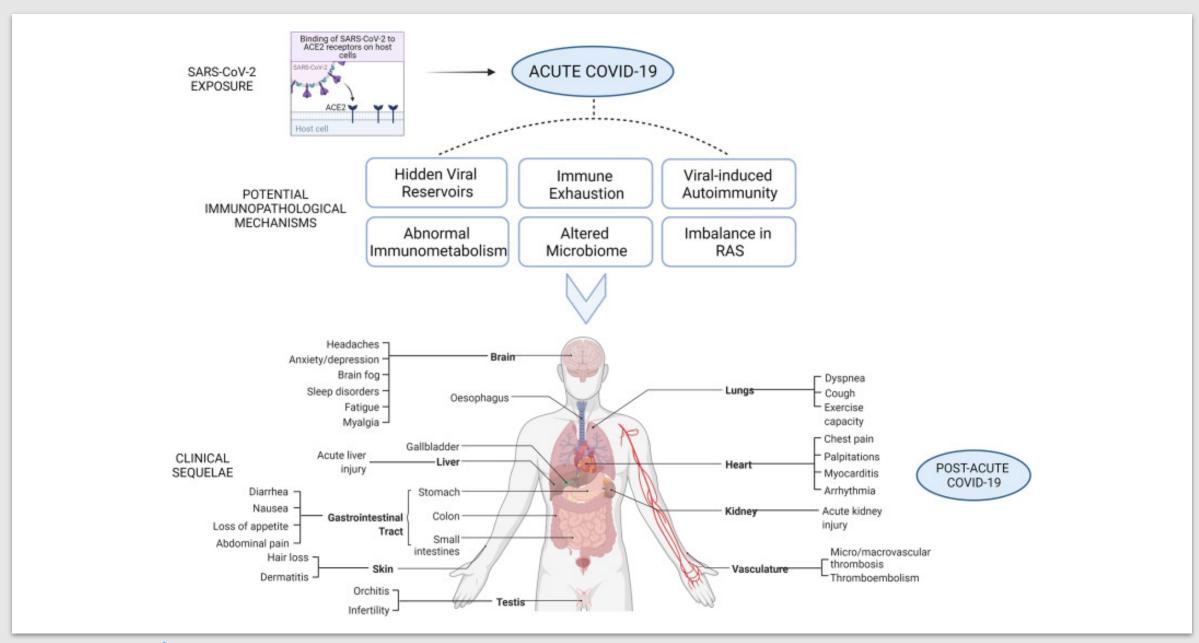


Natural history of post-COVID-19 syndrome, the COVERSCAN study in low-risk individuals (N=201) and



Perspectum Ltd.





Front Immunol. 2021; 12: 686029.

Theories behind PASC

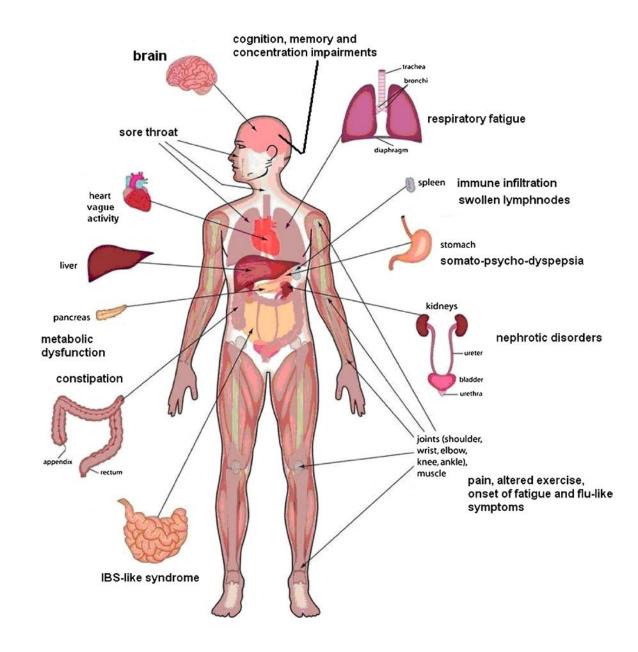
- Chronic COVID-19 associated immune exhaustion
 - Continuous release of senescence-associated secretory phenotype (SASP) from the residual senescent cells
- Altered microbiome
- Abnormal immunometabolism and mitochondrial dysfunction
 - T Cell exhaustion
- Viral induced autoimmunity
- Imbalance in the renin-angiotension system- increased angiotension II leading to abnormal blood vessels

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Definition of PASC

- > 12 weeks of symptoms that cannot be explained by an alternative diagnosis
- Heterogenous multi-organ symptoms
- Similar to many other post-viral chronic syndromes

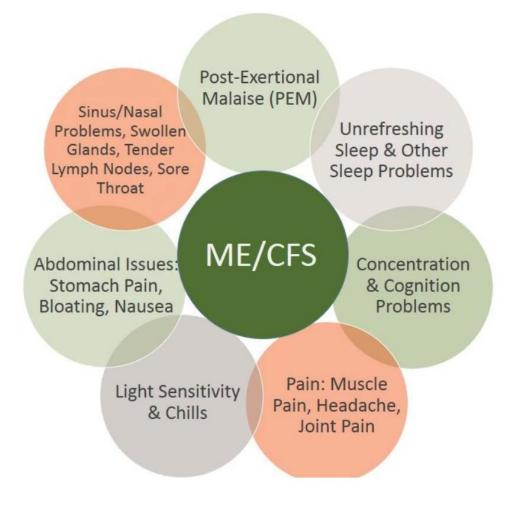
Organs affected in COVID long haul similar to chronic fatigue syndrome



Common Symptoms

- Myalgic encephalomyelitis/chronic fatigue
- Fibromyalgia
- Dysautonomia
- Anxiety/depression
- Sleep disturbances

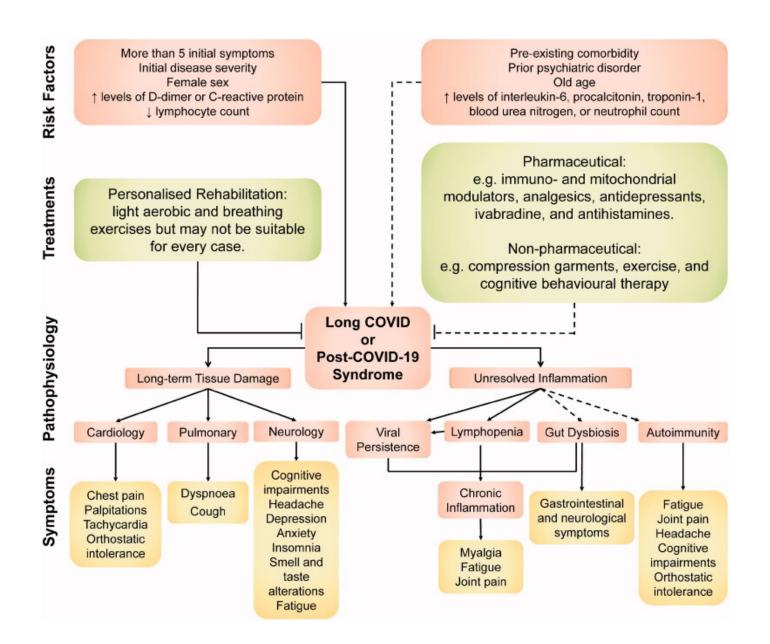
Myalgic Encephalomyelitis / Chronic Fatigue Syndrome



https://solvecfs.org/about-the-disease/

PASC Flow Chart

Yong. Infect Dis (Lond) 2021



Other Infections that Cause Similar Symptoms

Lyme disease

Epstein-bar virus (EBV)

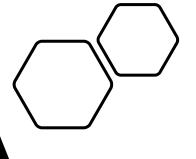
HIV

Cytomegally virus (CMV)

Severe acute respiratory syndrome (SARS)

Middle East respiratory syndrome (MERS)

Multi-Disciplinary Treatment for



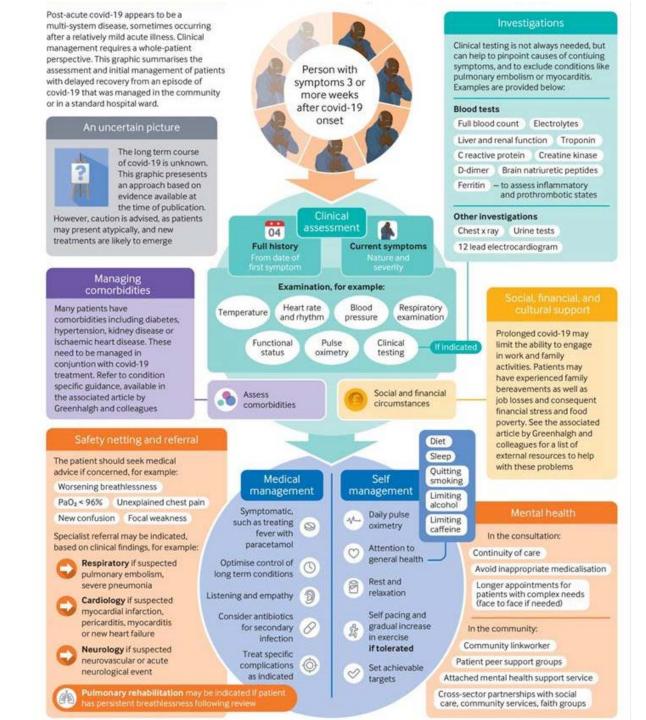
Supporting patients

Coping skills

Rehab

BMJ Summary Long COVID in primary care: assessment and initial management of patients with continuing symptom

https://www.bmj.com/content/370/bmj.m3026/infographic



PASC Blood Tests Considerations in Primary Care

Investigations

Clinical testing is not always needed, but can help to pinpoint causes of contiuing symptoms, and to exclude conditions like pulmonary embolism or myocarditis. Examples are provided below:

Blood tests

Full blood count | Electrolytes

Liver and renal function Troponin

C reactive protein Creatine kinase

D-dimer Brain natriuretic peptides

Ferritin – to assess inflammatory and prothrombotic states

Other investigations

Chest x ray Urine tests

12 lead electrocardiogram

Post-Acute Chronic COVID-19 Management Considerations in Primary Care

Safety netting and referral

The patient should seek medical advice if concerned, for example:

Worsening breathlessness

PaO₂ < 96% Unexplained chest pain

New confusion

Focal weakness

Specialist referral may be indicated, based on clinical findings, for example:

- Respiratory if suspected pulmonary embolism, severe pneumonia
- Cardiology if suspected myocardial infarction, pericarditis, myocarditis or new heart failure
- Neurology if suspected neurovascular or acute neurological event

Pulmonary rehabilitation may be indicated if patient has persistent breathlessness following review

Medical management

Symptomatic, such as treating fever with paracetamol

Optimise control of long term conditions

Listening and empathy

Consider antibiotics for secondary infection

> Treat specific complications as indicated



Self management

Diet

Sleep

Ouitting

smoking

Limiting

Limiting

caffeine

alcohol



Attention to general health

Rest and relaxation

> Self pacing and gradual increase in exercise if tolerated

Set achievable targets

article by Greenhalgh and colleagues for a list of external resources to help with these problems

Mental health

In the consultation:

Continuity of care

Avoid inappropriate medicalisation

Longer appointments for patients with complex needs (face to face if needed)

In the community:

Community linkworker

Patient peer support groups

Attached mental health support service

Cross-sector partnerships with social care, community services, faith groups









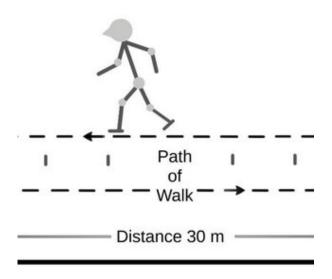






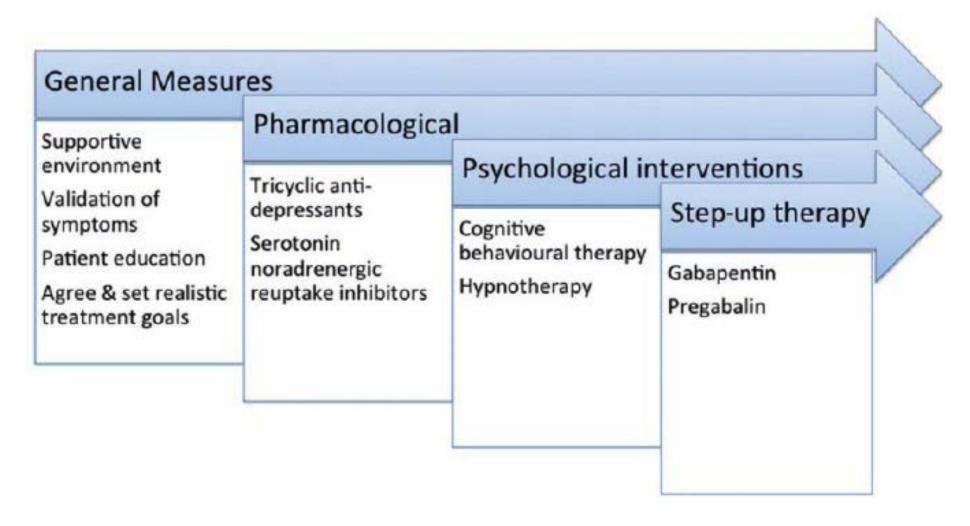
PASC-Dyspnea Treatments

- Pulse oximeter. SpO2 >92% on RA.
- 6 minute walk test
- Imaging generally not necessary unless hypoxic
- Incidence of post-COVID-19 VTE in patients recovering from mild to moderate disease not known but probably not high risk
- Reassurance with recommendation for modest exercise, breathing techniques and adequate sleep. Recovery generally the rule, but time course prolonged (weeks to months)

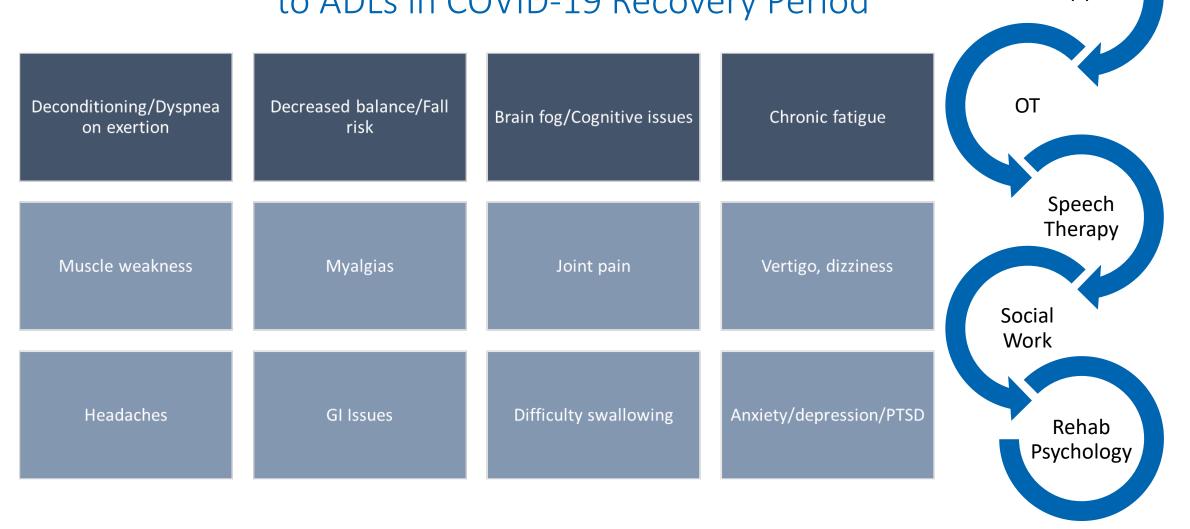


Chronic Abdominal Pain

STEP-UP APPROACH



Refer to Rehabilitation if unable to return to ADLs in COVID-19 Recovery Period



Approach to Therapeutics

- Risk: Benefit analysis
 - PT, Pulmonary Rehab, CBT
- Listen Intently
 - Validation of concerns
- Remain open to other diagnostic considerations
 - Avoid Anchor bias especially with prolonged symptoms
- Consider Palliative approach when appropriate

Call to Action

- Physicians need to recognize and validate patients symptoms
- We do not have a pill or an easy button
- Destigmatize that a person may not be the same after an infection
- Discuss lifestyle modifications focusing on exercise, diet
- Focus patients on what a new normal looks like
- Fundings outcomes and trials for fatigue and chronic pain

The End

Questions?

