Post Acute Sequelae of COVID-19 (PASC)

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Objectives

- Understand theoretical causes of PASC
- Recognize the symptoms of PASC
- Understand the various treatment approaches to PASC
- Call to ACTION regarding PASC/Fibromyalgia/Chronic fatigue syndrome

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 policy recommendations.

Andrea Dennis et al. BMJ Open 2021;11:e048391
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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

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 Symptons

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

Myalgic Encephalomyelitis / Chronic Fatigue Syndrome

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

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 PASC

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

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

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**Chronic Abdominal Pain**

**STEP-UP APPROACH**

1. **General Measures**
   - Supportive environment
   - Validation of symptoms
   - Patient education
   - Agreed and realistic treatment goals

2. **Pharmacological**
   - Antiplatelet agents
   - Thrombolysis
   - Oral anticoagulants
   - Thrombectomy

3. **Psychological Interventions**
   - Cognitive behavioral therapy
   - Hypnotherapy
   - Psychoeducation

4. **Stepup therapy**
   - Dual antiplatelet therapy
   - Oral anticoagulants

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**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

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

- Speech Therapy
- Occupational Therapy
- Physical Therapy
- Rehabilitation
- Psychology
- Social Work

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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
- Funding outcomes and trials for fatigue and chronic pain