Actualització en patologies mèdiques prevalents

LONG COVID 19. THE TIP OF THE ICEBERG

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1. **COVID-19 agudo**: Signos y síntomas de la COVID-19, tras su contagio, que se pueden extender hasta a unas 4 semanas desde el contagio.

2. **Secuelas de la COVID-19**, denominadas frecuentemente post-COVID: Existe el antecedente de una afectación grave por la COVID-19 en su fase aguda, que, frecuentemente, ha requerido ingreso hospitalario, incluso en unidades de críticos, y que presentan síntomas derivados de secuelas posteriores al daño estructural de las complicaciones sufridas.

3. **COVID Persistente o Long COVID** (CP/LC): Complejo sintomático multiorgánico que afecta a aquellos pacientes que han padecido la COVID-19 (con diagnóstico confirmado por pruebas de laboratorio o sin él) y que permanecen con sintomatología tras la considerada fase aguda de la enfermedad, pasadas 4 e incluso 12 semanas, persistiendo los síntomas en el tiempo.

Conceptos básicos en relación con la definición COVID Persistente / Long COVID:

- Persistencia de síntomas más allá de las 4-12 semanas tras el contagio por SARS-CoV-2.
- Diagnóstico por PDIA en la fase aguda de la COVID-19 cuando ésta ha estado accesible, diagnóstico clínico en el resto de las circunstancias.
- Presentación independiente de la gravedad de la fase aguda de la COVID-19, su sintomatología no es fruto de las secuelas de la enfermedad aguda.
- Inexistencia de periodo de curación de la fase aguda (no post-COVID).
- Distribución en todas las edades, incluso en edad pediátrica, con predominio en la mediana edad.
- Presencia en ambos sexos, con predominio en las mujeres.
- Frecuente fluctuación de los síntomas y/o curso clínico en forma de brotes.
- Inexistencia de explicación por una enfermedad subyacente alternativa.

*Algunos pacientes con secuelas pueden, a su vez, presentar persistencia de síntomas de la COVID, más allá de las secuelas estructurales.

Principales teorías de la etiopatogenia de la COVID Persistente / Long COVID:

- Persistencia del virus
- Tormenta inflamatoria y alteración de la inmunidad
- Autoanticuerpos

1. **Persistencia del virus** en el organismo, originando una infección latente o crónica. Existen antecedentes de virus que no se insertan en el ADN y se cronifican en ciertas subpoblaciones, como son el virus de la hepatitis C, virus de la polio, y el virus del Ébola. Diversos estudios demuestran la existencia del virus acantonado en el tubo digestivo (3,24,25), así como en la mucosa olfatoria desde donde progresaría hacia el sistema nervioso central (26). Aunque la afectación fundamental es respiratoria y por ello, para realizar el diagnóstico, se realiza la toma de muestra a nivel orofaríngeo, en investigación es frecuente la realización de PCR en heces en busca de restos virales.

2. La infección desencadena una **tormenta inflamatoria**, la llamada "tormenta de citoquinas", por el virus completo o fragmentos del mismo, en su fase aguda o acantonada (10,27). Este evento, conocido como tormenta de citocinas, es una característica inmunopatológica de COVID-19 y se ha asociado con la gravedad de la enfermedad y también con la persistencia de síntomas. Algunas de estas moléculas se han propuesto como biomarcadores para monitorizar la evolución clínica y determinar la selección del tratamiento para los pacientes con COVID-19, pero es importante considerar que algunas de estas moléculas, citoquinas y quimiocinas, funcionan de manera dependiente del contexto, por lo que la relevancia clínica de analizar cambios de citocinas individuales es limitada.

   Con todas estas consideraciones, existen diferentes evidencias que recogen alternaciones diferentes en los perfiles clínicos. Así, los pacientes con COVID-19 agudo grave suelen tener un incremento de IL-6 e IL-10 mientras el perfil de afectados por CP/LC presenta (10):
   - Incremento de: IFN-γ, IL-2, TCD4+, CD8+, células B, y subconjunto monocítico CD14+ y CD16+.
   - Descenso de los niveles CCL4.

En algunos estudios se ha reportado alteración de las citoquinas en los pacientes recuperados reflejando la inflamación crónica y la angiogénesis en curso. Los pacientes con COVID-19 recuperados presentaban niveles elevados de IL-17A proinflamatoria, SCF, IL-12p70, IL-1β y MIP-1β, BDNF, VEGF pro-angiogénicos el día 180 en comparación con los controles sanos (28).

3. Existencia de **autoanticuerpos** en la COVID 19 que pueden actuar contra proteínas inmunomoduladoras, perturbando la función inmunológica. En algunos casos se constata la reactividad y alta prevalencia de los autoanticuerpos contra las proteínas inmunomoduladoras, incluidas las citocinas, las quimiocinas, los componentes del complemento y las proteínas de la superficie celular. Estos autoanticuerpos perturban la función inmune y deterioran el control virológico al inhibir la señalización de los inmunorreceptores y al alterar la composición de las células inmunes periféricas. Todo ello, podría contribuir a la inmunopatología de la COVID19, agravando sus síntomas o manteniéndolos (32).

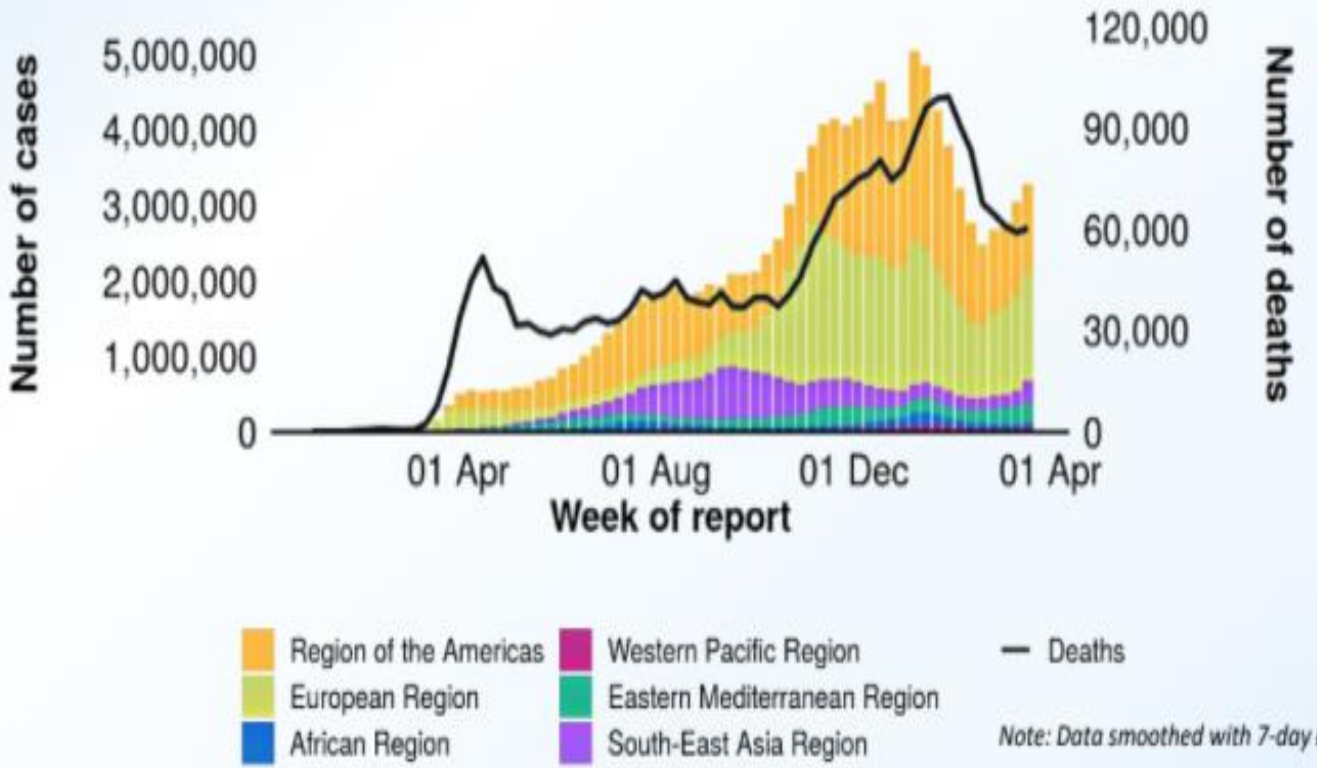
Además de las anteriores teorías, existen aportaciones de distintos equipos de investigación en relación a alteraciones en los perfiles nutricionales con disbalance entre diferentes mediadores lipídicos proinflamatorios sobre los mediadores proresolutivos de la respuesta inflamatoria en pacientes diagnosticados de CP/LC.

- Así como otros que atribuyen al déficit de **vitamina B12, y otros trastornos nutricionales**, una función en el procedimiento de desarrollar persistencia de síntomas.

- Otros grupos están investigando **en metabolómica,** bajo la premisa de que la COVID-19 es una infección sistémica que ejerce un impacto significativo en el metabolismo.

- El **papel del tubo digestivo y la microbiota** también se encuentran en estudio.

- Cases: > 122 million
- Deaths: > 2.7 million

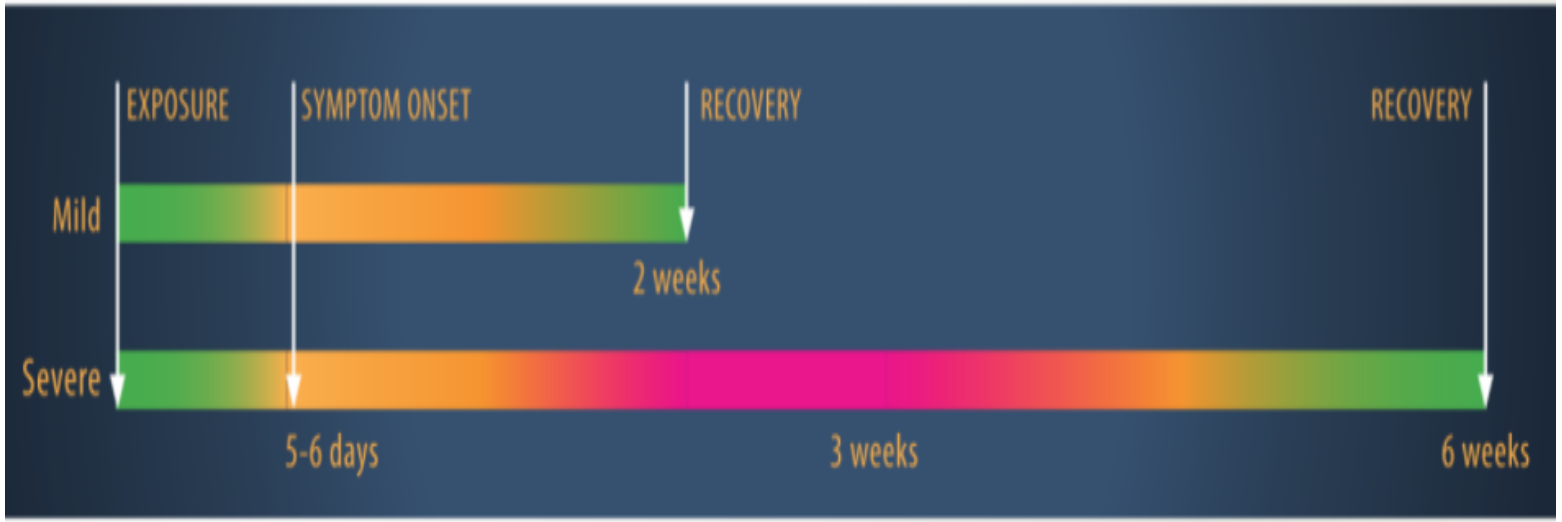


CHECK OUT THE LATEST GLOBAL SITUATION

WHO Coronavirus Disease (COVID-19) Dashboard

* Data are incomplete for the current week. Cases depicted by bars; deaths depicted by line

Clinical course of COVID-19



- Most people with COVID-19 experience **mild symptoms** or **moderate illness**
- Approximately **10-15% of cases progress to severe disease**, and about **5% become critically ill**
- Typically, people recover from COVID-19 after 2 to 6 weeks

Lingering symptoms after SARS-CoV-2 infection

- While most people with COVID-19 recover and return to normal health, some people can have symptoms that last for weeks or even months after recovery from acute illness. People are not infectious to others during this time[1]
- This persistent state of ill health is known as **'post COVID condition'** but other names are also used to describe the condition[2]. However, there is no internationally agreed definition of post COVID condition as of yet
- Even people who are not hospitalized and who have mild illness can experience persistent or late symptoms
- Some patients develop medical complications that may have lasting health effects

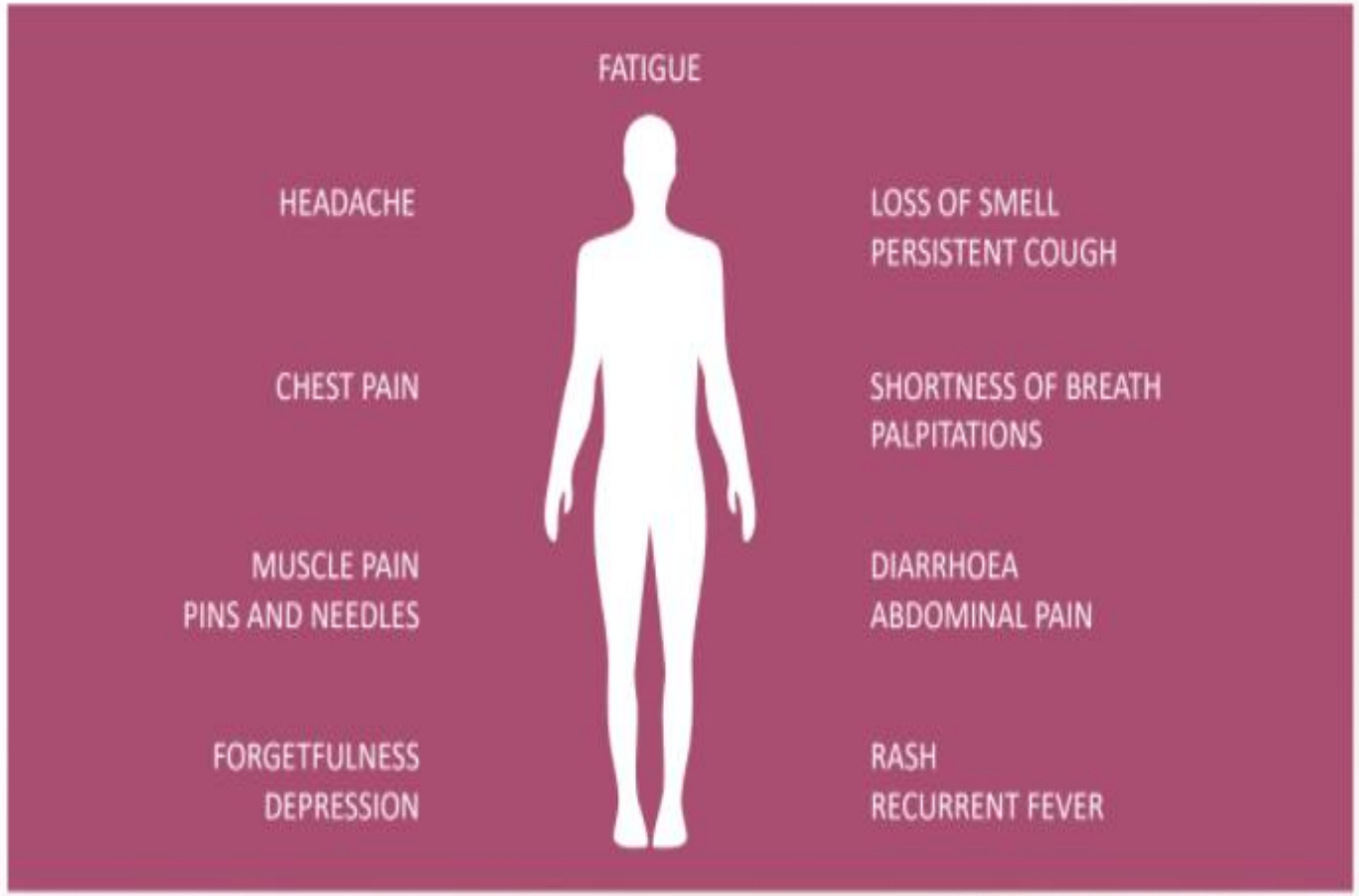
Image: vecteezy.com

[1] People are not infectious past 9-10 days post symptom onset if they have asymptomatic or mild disease. After severe disease (hospitalized patients), people typically do not shed virus after three weeks

[2] ie: chronic COVID syndrome; late sequelae of COVID-19; long COVID; long haul COVID; long-term COVID-19; post COVID syndrome; post-acute COVID-19; post-acute sequelae of SARS-CoV-2 infection

Reported symptoms after SARS-CoV-2 infection

A wide range of long-term symptoms are reported, among others*:



* This is not an exhaustive list, other symptoms are reported

Source: https://apps.who.int/iris/bitstream/handle/10665/339629/Policy-brief-39-1997-8073-eng.pdf

https://www.medrxiv.org/content/10.1101/2021.01.27.21250617v2.full.pdf
https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html
https://www.acpjournals.org/doi/10.7326/M20-5926

COVID-19 may increase the risk of long-term health problems

More serious long-term complications appear to be less common but have also been reported, especially in patients with severe COVID-19 who were hospitalized. These have been noted to affect different organ systems in the body and include:

CARDIOVASCULAR

inflammation of the heart muscle

RESPIRATORY

lung function abnormalities

DERMATOLOGIC

rash

NEUROLOGIC

loss of taste & smell, sleep disturbance

PSYCHIATRIC

depression, anxiety, changes in mood

https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/late-sequelae.html
https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2932656-8

Some people feel they do not fully recover from COVID-19

- There are many reports from people who feel they do not regain their previous health following COVID-19
- Preliminary results from a nationally representative sample survey by the UK Office for National Statistics estimates that around **1 in 10 respondents** testing positive for COVID-19 **may exhibit symptoms for a period of 12 weeks or longer**[1]
- Other studies indicate that around a third of people testing positive for SARS-CoV-2 **had not returned to their usual state of health when interviewed 3 to 6 weeks after diagnosis** [2,3,4]
- One recent study found that **30% of COVID-19 patients surveyed still had persistent symptoms after nine months**[5]. The majority of patients surveyed (85%) were outpatients with mild illness
- Patients that are admitted to intensive care units may experience **post-intensive care syndrome** (PICS) which are health problems that remain after critical illness

[1] https://www.ons.gov.uk/news/statementsandletters/theprevalenceoflongcovidsymptomsandcovid19complications
[2] https://www.cdc.gov/mmwr/volumes/69/wr/mm6930e1.htm
[3] https://www.acpjournals.org/doi/10.7326/M20-5926
[4] https://www.medrxiv.org/content/10.1101/2021.03.03.21252086v1.full.pdf
[5] https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2776560

Long-term health effects of other coronavirus infections

- Several studies* examined the **long-term health effects of severe acute respiratory syndrome (SARS)**, the coronavirus that emerged in 2003, the **middle east respiratory syndrome (MERS)** and other viruses[1]
- One study found a persistent and significant impairment of exercise capacity and health status in survivors of SARS over 24 months. Health workers who had SARS experienced even more marked adverse impact[2]
- Another study, revealed that 40% of people recovering from SARS still had chronic fatigue symptoms 3.5 years after being diagnosed[3]
- A systematic review found that lung function abnormalities, psychological impairment and reduced exercise capacity were reported in people with SARS and MERS up to 6 months after hospital discharge[4]

* This in not an exhaustive list of studies

[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7550169/
[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7192220/
[3] https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/415378
[4] https://pubmed.ncbi.nlm.nih.gov/32449782/#:~:text=Conclusion%3A%20Lung%20function%20abnormalities%2C%20psychological,outcomes%20in%20COVID%2019%20survivors

More research is needed to examine the long-term consequences of COVID-19

- **COVID-19 can result in prolonged illness**, even in young adults and children **without underlying chronic medical conditions**
- **Much is still unknown** about how COVID-19 affects people over time and **more research and multi-year studies are needed** to understand:
  - long-term effects of COVID-19
  - why symptoms persist or recur
  - how these health problems affect patients
  - clinical course and likelihood of full recovery
  - Implication of long term health effects on return to work
- Protective measures continue to be important in preventing COVID-19

https://www.nature.com/articles/d41586-021-00586-y?utm_source=Nature+Briefing&utm_campaign=7dc7a6927f-briefing-dy-20210305&utm_medium=email&utm_term=0_c9dfd39373-7dc7a6927f-43373093https://

Social media monitoring on post COVID condition

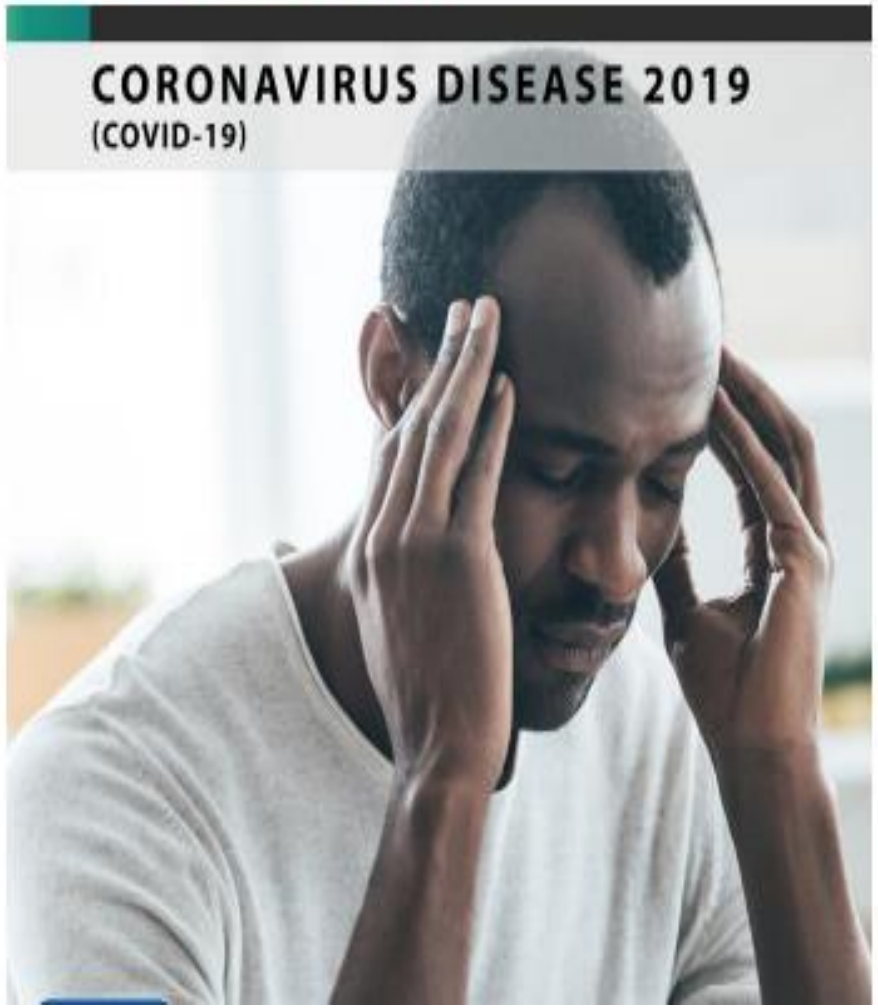
Mentions of 'long COVID' on social media

'long COVID' generated
1.65M social media mentions
during a **three-month period**

Mid March mentions
rose by 140%

Post-COVID Conditions is an umbrella term

- "**Post-COVID conditions**" is an umbrella term for the wide range of physical and mental health consequences experienced by some patients that are present four or more weeks after SARS-CoV-2 infection, including by patients who had initial mild or asymptomatic acute infection.

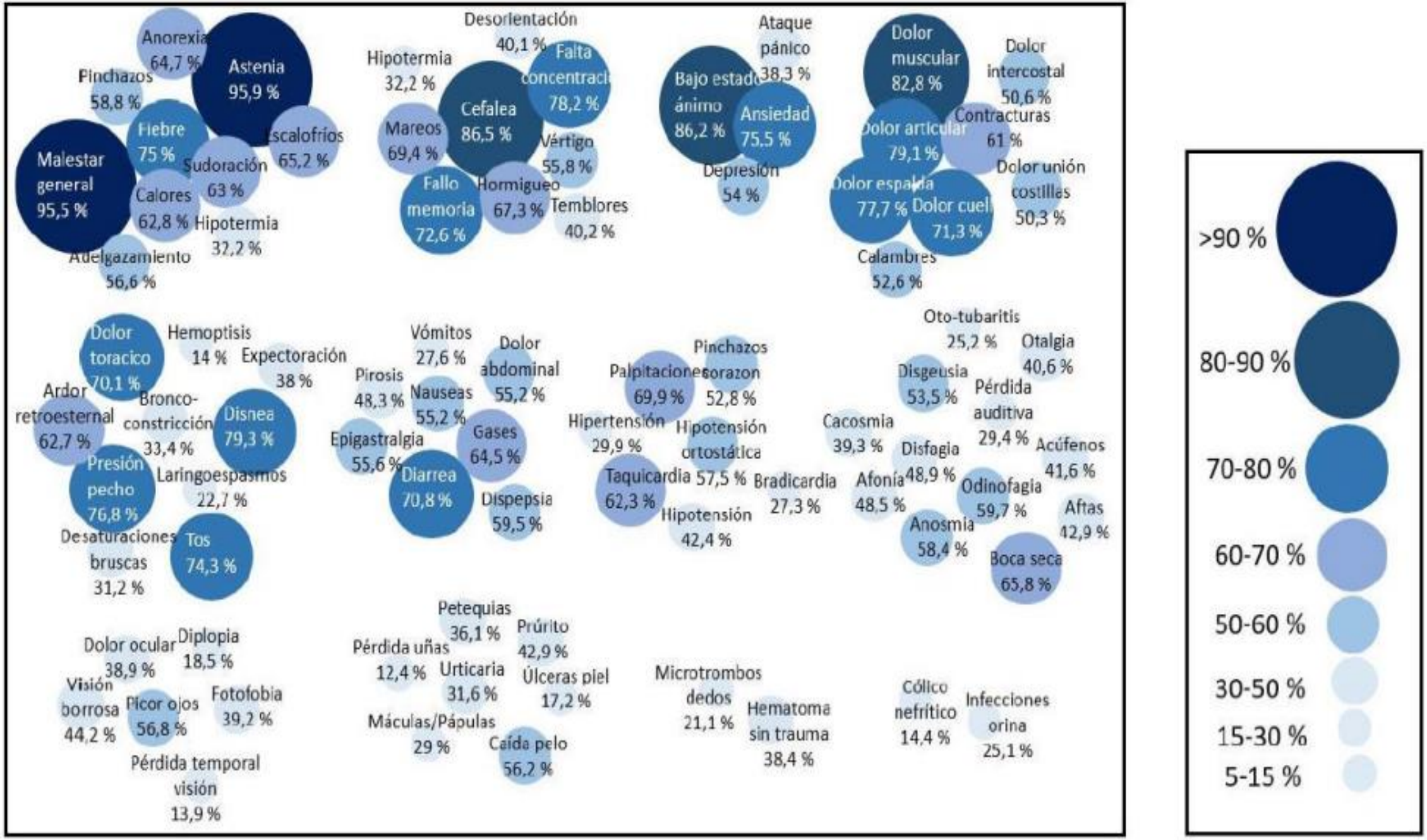


Post-COVID conditions are heterogenous

- Several patterns have been identified
  - Persistent symptoms
  - New-onset late sequelae
  - Evolution of symptoms/conditions
- Attributable to different underlying pathophysiologic processes
- Presentation could be complicated by a number of factors
- May share similarities with other post-viral conditions

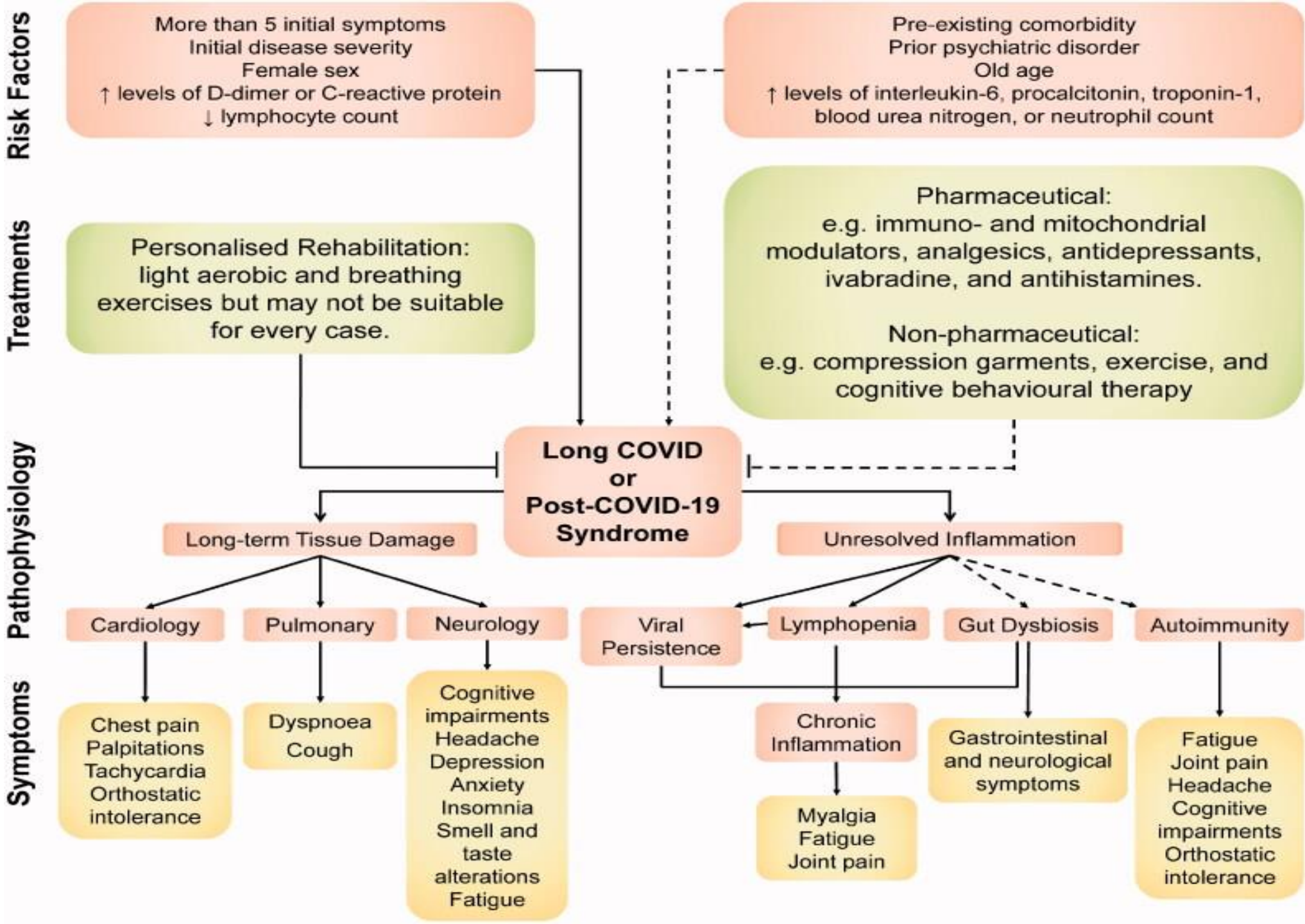
Post-COVID conditions are associated with a spectrum of physical, social, and psychological consequences


SINTOMATOLOGÍA COVID PERSISTENTE
ASTENIA
INCAPACIDAD
PÉRDIDA DE CALIDAD DE VIDA
FLUCTUACIÓN DE LOS SÍNTOMAS
COVID19
COAGULACIÓN
Hematomas
Microtrombosis
Acras...
DERMATOLÓGICOS
Urticaria
Rash
Alopecia...
CARDIACOS
Palpitaciones
Hipotensión ortostática
Hipertensión arterial
Síncope
Taquicardia
Bradicardia sinusal...
DIGESTIVOS
Abdominalgia
Dispepsia
Pirosis
Flatulencia
Diarrea...
RESPIRATORIOS
Disnea
Tos seca
Opresión torácica...
GENERALES
Febrícula
Escalofríos
Anorexia
Malestar general...
PSICOLÓGICOS
Ansiedad
Fobias
Apatía
Trastornos del sueño
TOC...
NEUROLÓGICOS
Cefalea
Parestesias
Anosmia/cacosmia
Disgeusia
Dispraxia
Déficit de memoria
Inestabilidad
Mareo
Incapacidad para concentrarse...
OSTEOMUSCULARES
Artralgias y mialgias
Calambres musculares...
OTORRINO-LARINGOLÓGICOS
Odinofagia/disfagia
Disfonía
Aftas bucales
Acúfenos/hipoacusia...
OFTALMOLÓGICOS
Diplopia
Nistagmus
Visión borrosa/ojo seco...


Anorexia 64,7 %
Astenia 95,9 %
Pinchazos 58,8 %
Fiebre 75 %
Escalofríos 65,2 %
Malestar general 95,5 %
Sudoración 63 %
Calores 62,8 %
Hipotermia 32,2 %
Adelgazamiento 56,6 %
Desorientación 40,1 %
Hipotermia 32,2 %
Falta concentraci 78,2 %
Cefalea 86,5 %
Mareos 69,4 %
Vértigo 55,8 %
Fallo memoria 72,6 %
Hormigueo 67,3 %
Temblores 40,2 %
Ataque pánico 38,3 %
Bajo estado ánimo 86,2 %
Ansiedad 75,5 %
Depresión 54 %
Dolor muscular 82,8 %
Dolor intercostal 50,6 %
Dolor articular 79,1 %
Contracturas 61 %
Dolor unión costillas 50,3 %
Dolor espalda 77,7 %
Dolor cuel 71,3 %
Calambres 52,6 %
Dolor toracico 70,1 %
Hemoptisis 14 %
Expectoración 38 %
Ardor retroesternal 62,7 %
Bronco-constricción 33,4 %
Disnea 79,3 %
Presión pecho 76,8 %
Laringoespasmos 22,7 %
Desaturaciones bruscas 31,2 %
Tos 74,3 %
Vómitos 27,6 %
Dolor abdominal 55,2 %
Pirosis 48,3 %
Nauseas 55,2 %
Epigastralgia 55,6 %
Gases 64,5 %
Diarrea 70,8 %
Dispepsia 59,5 %
Palpitaciones 69,9 %
Pinchazos corazon 52,8 %
Hipertensión 29,9 %
Hipotensión ortostática 57,5 %
Taquicardia 62,3 %
Bradicardia 27,3 %
Hipotensión 42,4 %
Oto-tubaritis 25,2 %
Otalgia 40,6 %
Disgeusia 53,5 %
Pérdida auditiva 29,4 %
Cacosmia 39,3 %
Disfagia 48,9 %
Acúfenos 41,6 %
Afonía 48,5 %
Odinofagia 59,7 %
Aftas 42,9 %
Anosmia 58,4 %
Boca seca 65,8 %
Dolor ocular 38,9 %
Diplopia 18,5 %
Visión borrosa 44,2 %
Picor ojos 56,8 %
Fotofobia 39,2 %
Pérdida temporal visión 13,9 %
Petequias 36,1 %
Prúrito 42,9 %
Pérdida uñas 12,4 %
Urticaria 31,6 %
Úlceras piel 17,2 %
Máculas/Pápulas 29 %
Caída pelo 56,2 %
Microtrombos dedos 21,1 %
Hematoma sin trauma 38,4 %
Cólico nefrítico 14,4 %
Infecciones orina 25,1 %
>90 %
80-90 %
70-80 %
60-70 %
50-60 %
30-50 %
15-30 %
5-15 %

Listen to and validate patients' experiences and partner with patients to identify achievable health goals

- Most post-COVID conditions can be diagnosed and managed by primary care
- Consider referral to multidisciplinary post-COVID care centers
- Many post-COVID conditions may be diagnosed based on history and physical exam
  - Potential harms could arise from excessive testing
- Consider conservative diagnostic approach in the first 4 to 12 weeks
- Symptoms persisting beyond three months should prompt further evaluation


Risk Factors
Treatments
Pathophysiology
Symptoms
More than 5 initial symptoms
Initial disease severity
Female sex
↑ levels of D-dimer or C-reactive protein
↓ lymphocyte count
Pre-existing comorbidity
Prior psychiatric disorder
Old age
↑ levels of interleukin-6, procalcitonin, troponin-1, blood urea nitrogen, or neutrophil count
Personalised Rehabilitation: light aerobic and breathing exercises but may not be suitable for every case.
Pharmaceutical:
e.g. immuno- and mitochondrial modulators, analgesics, antidepressants, ivabradine, and antihistamines.
Non-pharmaceutical:
e.g. compression garments, exercise, and cognitive behavioural therapy
Long COVID or Post-COVID-19 Syndrome
Long-term Tissue Damage
Unresolved Inflammation
Cardiology
Pulmonary
Neurology
Viral Persistence
Lymphopenia
Gut Dysbiosis
Autoimmunity
Chest pain
Palpitations
Tachycardia
Orthostatic intolerance
Dyspnoea
Cough
Cognitive impairments
Headache
Depression
Anxiety
Insomnia
Smell and taste alterations
Fatigue
Chronic Inflammation
Myalgia
Fatigue
Joint pain
Gastrointestinal and neurological symptoms
Fatigue
Joint pain
Headache
Cognitive impairments
Orthostatic intolerance

Commonly reported symptoms include dyspnea, fatigue, post-exertional malaise, and brain fog

Common Post-COVID Symptoms	
• Dyspnea or increased respiratory effort	• Abdominal pain
• Fatigue	• Diarrhea
• Post-exertional malaise	• Insomnia and other sleep difficulties
• "Brain fog," cognitive impairment	• Fever
• Cough	• Lightheadedness
• Chest pain	• Impaired daily function and mobility
• Headache	• Pain
• Palpitations and/or tachycardia	• Rash (e.g., urticaria)
• Arthralgia	• Mood changes
• Myalgia	• Anosmia or dysgeusia
• Paresthesia	• Menstrual cycle irregularities

For clinical features warranting further evaluation, consider broad range of possible post-COVID conditions

Body System	Conditions (subject to change and not mutually exclusive)
Cardiovascular	Myocarditis, heart failure, pericarditis, orthostatic intolerance (e.g., postural orthostatic tachycardia syndrome [POTS])
Pulmonary	Interstitial lung disease, reactive airway disease
Renal	Chronic kidney disease
Dermatologic	Alopecia
Rheumatologic	Reactive arthritis, fibromyalgia, connective tissue disease
Endocrine	Diabetes mellitus, hypothyroidism
Neurologic	Transient ischemic attack/stroke, olfactory and gustatory dysfunction, sleep dysregulation, altered cognition, memory impairment, headache, weakness, neuropathy
Psychiatric	Depression, anxiety, post-traumatic stress disorder (PTSD), psychosis
Hematologic	Pulmonary embolism, arterial thrombosis, venous thromboembolism, other hypercoagulability
Urologic	Incontinence, sexual dysfunction
Other	Weight loss, dysautonomia, allergies and mast cell activation syndrome, reactivation of other viruses, pain syndromes, hearing loss, vertigo, and progression of comorbid conditions

Primary Care Practical Guide for Patients with LONG COVID-19

With this document we intend to provide general practitioners with a set of basic diagnostic tools, which are considered to be useful for monitoring COVID-19 patients with persistent symptoms. It has been developed by the Spanish Society of General and Family Physicians (SEMG), in collaboration with the Spanish collective of Long Covid sufferers, LongCovid ACTS.

DEFINITION:

In the absence of both an established definition for this condition and its official recognition as a disease and/or syndrome, we define the term **LONG COVID-19** as **"the multiorgan symptom complex affecting patients who have suffered from Covid-19 (with or without a confirmed diagnosis) and who experience on-going, persistent symptoms after what is considered to be the acute phase of the disease is over".**

RECOMMENDED STUDIES

01 LABORATORY TESTS

02 IMAGING TESTS

03 FUNCTIONAL TESTS

04 EMOTIONAL STATUS ASSESSMENT

05 ASSOCIATED COMORBIDITIES ASSESSMENT

06 FUNCTIONAL AND SOCIAL SITUATION ASSESSMENT

07 CRITERIA FOR SHARED ASSISTANCE

SEMG
Sociedad Española de Médicos Generales y de Familia

LongCovidACTS
AUTONOMOUS COMMUNITIES TOGETHER SPAIN

1. Laboratory tests

·**HEMOGRAM**

·**BIOCHEMISTRY**

Glucose Ions
Urea, LDH, PCR, ESR
Fe metabolism (Fe, Ferritin, Transferrin. IS Transferrin)
TSH and thyroid hormones
Renal Profile
Hepatic Profile
Ca & P
Albumin
B 12 & Vit D & Folate
NT- Pro BNP.

·**COAGULATION:**

D-dimer coagulation parameters

· **SEROLOGY**

COVID-19 PCR for those who did not have a diagnostic COVID-19 PCR. Also in patients without an initial PCR, the ELISA test would be indicated

OPTIONAL: Flu and/or RSV serology depending on the epidemiological situation

Atypical Pneumonia serology in symptomatic patients

2. Imaging tests

CHEST RADIOLOGY
Recommended for patients over 50, especially male smokers, and in patients who persist with clinical symptoms of pneumonia 3 weeks after treatment. They should not be performed routinely, according to the Spanish Society of Radiology.

CHEST COMPUTED TOMOGRAPHY
In Long Covid patients with cardiorespiratory symptoms and/or altered functional tests. CT angiography for suspected PE and in patients with elevated D-dimer and symptoms.

CRANIAL CAT AND/OR MRI
For patients with neurological symptoms, including persistent headaches (very frequent symptom) either as "de novo" symptom resulting from COVID-19 or known headaches where the characteristics have changed or alarm symptoms are present.

CARDIAC ECHOGRAPHY
In patients with symptoms of CHF, arrhythmias or other cardiac symptoms.

Ultrasound evaluation, if symptoms are suitable for ultrasound study.

3. Functional tests

Electrocardiogram. Assess QT Interval Space
in treatments with Azithromycin, Chloroquine or Hydroxychloroquine

Spirometry
Maximum Inspiratory Pressure (MIP) and Maximum Expiratory Pressure (MEP) if an oral respiratory manometer is available.

Diffusing Capacity of the Lungs Test (DLCO)

6 Minute Walk Test (6MWT)

4. Emotional Status Assessment

Screening for:
-Depression
-Anxiety and Uncertainty Intolerance
-Illness Anxiety Disorder
-Adherence to medical recommendations
-Impaired sleep quality

5. Associated Comorbidities Assessment

Nutritional evaluation
Sarcopenia evaluation
Assessment of fragility in elderly patients
Vaccinations

6. Functional social situation analysis

Quality of life questionnaire:
https://euroqol.org/wp-content/uploads/2016/10/Sample_UK__English__EQ-5D-5L_Paper_Self_complete_v1.0__ID_24700.pdf

Health questionnaire:
https://clinmedjournals.org/articles/jmdt/jmdt-2-023-figure-1.pdf

Physical activity questionnaire:
http://www.sdp.univ.fvg.it/sites/default/files/IPAQ_English_self-admin_long.pdf

Psychosocial and socioeconomic aspects

7. Criteria for shared assistance

Shared assistance (SA) with other hospital specialties:
SA in Preventive activities
SA in Respiratory Muscle Rehabilitation
SA in Nutrition (diets and/or supplements)
SA in the presence of Alarm Symptoms

The new concept of **shared care/assistance** contemplates a broad spectrum of collaborations and consists of a structured system designed to integrate the actions of all professionals involved in any given health care process. This will primarily be between the general practitioner and hospital specialists, although Shared Care models often incorporate Primary and Hospital Care nurses, who can act as case managers, and also patients with decision-making capacity (and, by extension, their families and loved ones) as an active part of the therapeutic team and the shared management process.

SEMG Sociedad Española de Médicos Generales y de Familia

LongCovidACTS AUTONOMOUS COMMUNITIES TOGETHER SPAIN

COVID-19 PERSISTENTE ANDALUCÍA

Covid-19 PERSISTENTE MADRID

#cuideu-nos COVID19 PERSISTENT

A thorough physical examination should be completed

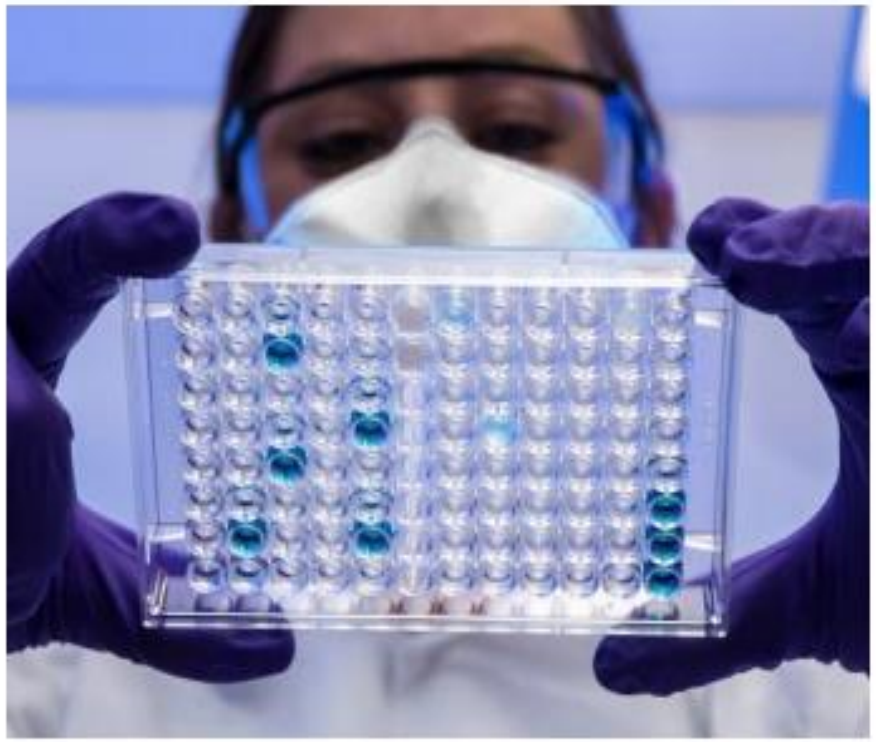
- Evaluate ambulatory pulse-oximetry with respiratory symptoms, fatigue, malaise
- Orthostatic vital signs with postural symptoms, dizziness, fatigue, cognitive impairment, malaise

A drop in systolic BP of ≥20 mm Hg, or in diastolic BP ≥10mm Hg, or experiencing lightheadedness or dizziness is considered abnormal

POSITION	TIME	BP	ASSOCIATED SYMPTOMS
Lying Down 	5 Mins.	BP____ / ____ HR_____	
Standing 	1 Min.	BP____ / ____ HR_____	
Standing 	3 Mins.	BP____ / ____ HR_____	

At this time, no laboratory test can definitively distinguish post-COVID conditions from other etiologies

- A positive viral test is not required to establish a diagnosis of post-COVID conditions
- Lab testing should be guided by clinical findings
- A basic panel of lab tests might be considered between 4 and 12 weeks
- Consider additional testing if symptoms persist for 12 weeks or longer



Basic diagnostic tests to consider ≥4 weeks after SARS-CoV-2 infection (or sooner if clinically indicated)	
Category	Laboratory tests
Blood count, electrolytes, and renal function	Complete blood count with possible iron studies to follow, basic metabolic panel, urinalysis
Liver function	Liver function tests or complete metabolic panel
Inflammatory markers	C-reactive protein, erythrocyte sedimentation rate, ferritin
Thyroid function	TSH and free T4
Vitamin deficiencies	Vitamin D, vitamin B12
Specialized diagnostic tests* to consider ≥12 weeks after SARS-CoV-2 infection (or sooner if clinically indicated)	
Category	Laboratory tests
Rheumatological conditions	Antinuclear antibody, rheumatoid factor, anti-cyclic citrullinated peptide, anti-cardiolipin, and creatine phosphokinase
Coagulation disorders	D-dimer, fibrinogen
Myocardial injury	Troponin
Differentiate symptoms of cardiac versus pulmonary origin	B-type natriuretic peptide
* The specialized diagnostic tests should be ordered in the context of suggestive findings on history and physical examination	

Symptom inventories and assessment tools might be helpful for monitoring the status of post-COVID condition

Selected assessment tools	
Functional status and/or quality of life	Patient-Reported Outcomes Measurement Information System (PROMIS) (e.g., Cognitive Function 4a)
	Post-Covid-19 Functional Status Scale (PCFS)
	EuroQol-5D (EQ-5D)
Respiratory conditions	Modified Medical Research Council Dyspnea Scale (mMRC)
Neurologic conditions	Montreal Cognitive Assessment (MoCA)
	Mini Mental Status Examination (MMSE)
	Compass 31 (for dysautonomia)
	Neurobehavioral Symptom Inventory
Psychiatric conditions	General Anxiety Disorder-7 (GAD-7)
	Patient Health Questionairre-9 (PHQ-9)
	PTSD Symptom Scale (PSS)
	Screen for Posttraumatic Stress Symptoms (SPTSS)
	PTSD Checklist for DSM-5 (PCL-5)
	Impact of Event Scale-Revised (IESR)
	Hospital Anxiety and Depression Scale (HADS)
Other conditions	Wood Mental Fatigue Inventory (WMFI)
	Fatigue Severity Scale

Symptom inventories and assessment tools might be helpful for monitoring the status of post-COVID conditions

Selected functional and other testing	
Exercise capacity testing	1-minute sit-to-stand test
	2-minute step test
	10 Meter Walk Test (10MWT)
	6-minute walk
Balance and fall risk	BERG Balance Scale
	Tinetti Gait and Balance Assessment Tool
Other	Tilt-table testing (e.g., for POTS)
	Orthostatic HR assessment

More evidence is needed to support the utility of specific imaging tests for evaluation of post-COVID conditions

Some imaging tests may have low yield

- CT chest with normal chest x-rays and normal oxygen saturation
- CT pulmonary angiogram without an elevated D-dimer and compatible symptoms
- Brain MRI with brain fog

More specialized imaging studies (e.g., cardiac MRI) might merit consultation with specialists

For most patients, the goal of medical management is to optimize function and quality of life

- Creating a comprehensive rehabilitation plan may be helpful for some patients
- Many post-COVID conditions can be improved through already established symptom management approaches
- Evidence indicates that holistic support for the patient throughout their illness course can be beneficial

UNITAT COVID CRONIC HUMT
(Nº 58 PACIENTES)

SINTOMAS	%
DIFICULTAD RESPIRATORIA	35
PERDIDA COGNITIVA	30
DOLOR MUSCULAR	40
ANSIEDAD	20
DEPRESIÓN (Psiquiatría)	12
PARESTESIAS/rampas	35
PERDIDA OLFATO/GUSTO	10
FIEBRE/FEBRÌCULA	10
MIALGIA	35
PALPITACIONES/TAQUICARDIA	15
FATIGA	85
ESCALA DE CUALIDAD EUROQOL 5D *. MEDIA 6 MESES	

*Calidad de vida fue medida usando la escala EuroQol 5D

TAKE HOME MESSAGES

- EL LONG COVID ÉS POT VEURE FINS A UN 10-15% DE PACIENTS QUE HAN TINGUT INFECCIÓ.
- LA QÜALITAT DE VIDA DELS PACIENTS, FINS I TOT DESPRÉS DE 6 MESOS ÉS DOLENTA SEGONS LA PERCEPCIÓ D'ELLS MATEIXOS.
- EL SIMPTOMES SÓN COMPLEXOS I MOLT VARIABLES I AFECTEN TOTES LES ÀREES.
- L'ENFOCAMENT DIAGNÒSTIC ÉS IMPORTANT PER DESCARTAR ALTRES MALALTIES.
- L'APROXIMACIÓ TERAPÈUTICA HA DE SER MULTIDISCIPLINAR.
- SORPREN QUE MOLTS PACIENTS TENEN ESCASSA MILLORA EN EL TEMPS.
- LA GRAVETAT DEL COVID INICIAL (ESTADA A UCI) SEMBLA SER UN FACTOR INDEPENDENT
- PERFIL DE DONA JOVE, AMB COVID MODERAT O GREU I OSCILACIONS CLÍNIQUES.
- PERFIL DE FIBROMIALGIA I FATIGA CRÓNICA.
- ÉS UNA AUTÈNTICA PUTADA.

MERCI