TOOLKIT GUIDE

Physiotherapy - Hyperventilation syndrome in the context of long-term Covid-19 symptoms

Validated by the HAS Board on 10 February 2021

Document intended for physiotherapists

Definition

Post-Covid-19, respiratory dysfunction probably of central origin (shunt of the chemoreception pathway and lower brainstem regulation) can be clinically expressed by hyperventilation syndrome (HVS), without any documented respiratory disease. A disproportionate respiratory rate and/or volumes compared to requirements are observed.

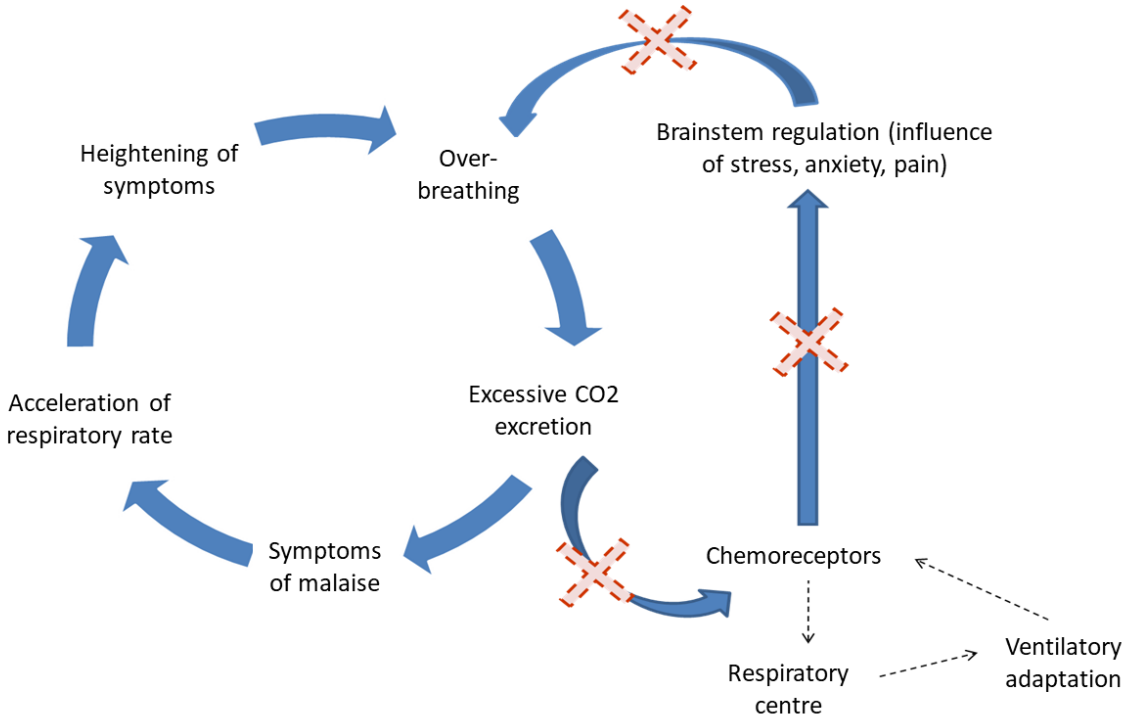

Figure 1 Vicious circle of HVS, as per Sauty et al., 2008.

Symptoms and signs

Dyspnoea (respiratory distress), anxiety, cough, upper chest ventilation mode (generally) with accessory inspiratory muscle overuse, shallow mouth-only breathing, presence of excessive sighing, yawning, throat clearing, over-breathing can be observed. Other symptoms such as headaches, confusion, vertigo, lipothymia, palpitations, arrhythmia, bloating, nausea, epigastric pain, paraesthesia, tremors, muscle cramps or pain can be experienced or reported.

There is no desaturation, hypocapnia may be present. It is necessary to differentiate polypnea following parenchymal disease due to SARS-CoV-2 infection and hyperventilation.

Assessment

The assessment of HVS is essentially based on clinical observation, at rest and/or on exertion. Hyperventilation syndrome is multidimensional in nature. Ventilatory disorders are to be assessed according to three aspects:

- biomechanical (respiratory muscle control dysfunction);
- cognitive and emotional factors;
- biochemical (hypocapnia).

It is essential to assess these disorders in order to refer the patient for suitable treatment methods. Hyperventilation syndrome quantification and follow-up can be proposed using the Nijmegen questionnaire. This questionnaire can also be a diagnostic aid.

Treatment

The different components of the medical diagnosis may justify prescribing specific respiratory physiotherapy. Following the diagnostic physiotherapy assessment, the physiotherapist will set out the treatment plan tailored and personalised to each patient. The physiotherapist must be trained on hyperventilation syndrome rehabilitation (see dyspnoea toolkit guide).

Rehabilitation is based on methodological observation of breathing (frequently in the upper chest) and close monitoring of affects. It makes use of awareness of breathing and is based on ventilatory control in various situations (resting, resistance and endurance exertion) experienced in a positive way. It includes breathing exercises at different volumes, rates, and pressures, apnoea, with guidance by the physiotherapist and awareness of abdominal-diaphragmatic breathing, and upper and lower chest breathing according to clinical practice. Relaxation or sophrology techniques may be beneficial.

Rehabilitation also encourages breathing exercises at home (self-rehabilitation, about 15 minutes per day) and using the breathing methods learned in everyday life.

Treatment efficacy is observed through an improvement in the patients' symptoms and everyday life: decrease in dyspnoea, respiratory rate, resumption of exercise, improvement of hypocapnia and quality of life.

Separately from HVS, the patient may need to gradually begin exercise therapy (see exercise therapy toolkit guide) HVS rehabilitation takes priority to prevent any exertional discomfort.

The medical prescription is accompanied by a doctor's letter setting out the medical diagnosis and the information required for good rehabilitation practice. The physiotherapist sends the prescriber a letter detailing the initial assessment and the patient's progress.

In the absence of rapid improvement (10 to 15 sessions), it is advised to review the patient.

Bibliographic references

1. Andrejak C, Cottin V, Crestani B, Debieuvre D, Gonzalez-Bermejo J, Morelot-Panzini C, et al. Guide de prise en charge des séquelles respiratoires post infection à SARS-CoV-2. Propositions de prise en charge élaborées par la Société de Pneumologie de Langue Française. Version du 10 novembre 2020. Rev Mal Respir 2021;38(1):114-21. http://dx.doi.org/10.1016/j.rmr.2020.11.009
2. Sauty A, Prosper M. Le syndrome d'hyperventilation. Rev Med Suisse 2008;4(180):2500-5.
3. van Dixhoorn J, Folgering H. The Nijmegen Questionnaire and dysfunctional breathing. ERJ open research 2015;1(1). http://dx.doi.org/10.1183/23120541.00001-2015
4. Vidotto LS, Carvalho CRF, Harvey A, Jones M. Dysfunctional breathing: what do we know? J Bras Pneumol 2019;45(1):e20170347. http://dx.doi.org/10.1590/1806-3713/e20170347

This document presents the main pointsof the publication: Physiotherapy - Hyperventilation syndrome in the context of long-term Covid-19 symptoms, rapid response method, 10 February 2021
All our publications can be downloaded at **www.has-sante.fr**

HAS HAUTE AUTORITÉ DE SANTÉ | Advancing quality in the fields of health and social care services