

## Are we looking at post-COVID patients as we should?

## Estamos olhando para os indivíduos pós-COVID como deveríamos?

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Since the coronavirus pandemic began, much has been said and researched about the clinical manifestations of COVID-19, whose presentations range from asymptomatic, mild, moderate, and severe symptomatic. The main manifestations are fever, cough, and fatigue, which may develop into pneumonia and acute respiratory distress syndrome<sup>1-3</sup>.

The severity pattern studied so far subdivides these individuals in the following therapy: home isolation for asymptomatic and mildly symptomatic patients, admission to hospital wards for moderate symptomatic patients, and ventilatory support and intensive care for severe symptomatic patients<sup>4</sup>.

The most studied clinical manifestations are mainly focused on the most severe form of the disease, which involves admission to the intensive care unit (ICU), the need for ventilatory

support, high doses of sedatives, prolonged hospitalization, and high mortality<sup>5</sup>, ranging from 50 to 97% in patients who required mechanical ventilation<sup>6</sup>. Still, 70% of individuals admitted to the ICU can develop several other complications associated with hospitalization, which impact on the respiratory, cardiovascular, neurological, and musculoskeletal systems<sup>7</sup>.

In addition to the severity of these patients, it has been observed that often individuals affected by COVID-19 have persistent symptoms even after being considered recovered. In Italy, a post-COVID follow-up of non-hospitalized individuals showed that 87.4% of the individuals evaluated 60 days after being considered cured still had persistent symptoms. Of these, 53.1% indicated fatigue as the most frequent symptom, followed by dyspnea (43.4%) and joint pain (27.3%), which led to a worsening in the quality of life in 44.1% of people<sup>8</sup>.

Based on the literature on cardiopulmonary rehabilitation in other respiratory diseases<sup>9</sup>, these symptoms of fatigue and dyspnea presented by post-COVID individuals are indicated for the post-COVID precocious cardiopulmonary rehabilitation program<sup>10</sup>. In addition, for some individuals, it may also be necessary to include components of neuromuscular rehabilitation<sup>4</sup>. In this context, it is necessary to expand the view of care in the context of multidimensional assessment and intervention for post-COVID individuals and question: Are post-COVID symptoms being monitored? What is actually being done to minimize these symptoms? What protocols are being implemented for this care? How are these patients being referred to rehabilitation services?

The rehabilitation of critically ill patients after discharge from other diseases is already carried out worldwide, precisely to try to minimize the deleterious effects of prolonged hospitalization, the functional, economic, social, and labor impact in the medium and long term<sup>7</sup>. However, guidance on the need for management in post-COVID patients is scarce in the literature<sup>11</sup>, but this discussion is necessary and is urgent since it is already known that COVID-19 results in high disability and morbidity, especially in risk groups<sup>12</sup>. In Brazil, the Brazilian Association of Cardiorespiratory Physiotherapy and Physiotherapy in Intensive Care (ASSOBRAFIR) helped train physiotherapists to work with patients affected by COVID-19. In addition, ASSOBRAFIR had the initiative to create the COVID-19 Committee to produce guiding documents, especially those related to physical therapy activities<sup>13</sup>.

Periodic monitoring, evaluation, rehabilitation, and reevaluation of individuals with post-COVID pneumonia, post-COVID acute respiratory distress syndrome, or those whose symptoms remain even after being considered cured of COVID-19 are necessary and essential to ensure the individual's full return to their quality of work and social functions<sup>7,14</sup>. But, for this, how is this post-COVID monitoring being carried out? What has been done for individuals whose respiratory and neuromuscular symptoms persist?

Are governments organized to create networks to monitor and assist these individuals? Are the rehabilitation services structured to receive, evaluate, treat, and monitor post-COVID patients? This organization for the post-peak period of the pandemic is necessary to minimize the overload of

health services, which already accumulate elective care, and especially to avoid medical leave of work due to disabilities, with an even greater economic impact<sup>11,15</sup>. International initiatives for evaluation and monitoring of the functional repercussions presented by patients affected by COVID-19 can already be identified in the literature<sup>16</sup>.

The rehabilitation of these individuals is essential and must be centered on the patient and adapted to their needs<sup>14</sup>, ruled on the reduction of respiratory symptoms, gain in strength, functionality, and quality of life<sup>4</sup>. It should also consist of educational measures<sup>4,11</sup> to understand the disease, the side effects generated by it, and to provide conditions and strategies for the patient to be a protagonist in its recovery<sup>4</sup>.

As rehabilitation must be based on functionality, actions and participation aimed at social activity must also be considered. For this, the rehabilitation protocol must involve respiratory, cardiovascular, musculoskeletal, neurological, and cognitive-emotional components<sup>12</sup> through exercises of respiratory and peripheral muscle strength, flexibility, aerobic exercises, gait, and balance training<sup>17</sup>. In addition to these, other rehabilitation strategies may also be necessary to achieve less restriction on social participation, such as psychological rehabilitation<sup>4</sup>. The rehabilitation modality can be offered in different ways, either by presential care for patients with greater disabilities or by telerehabilitation for individuals with less impairment and greater access to information and communication technologies (ICTs) or even by a hybrid model, which combines the modalities<sup>18</sup>.

In this pandemic moment, telerehabilitation has been widely used and this could not be different with post-COVID-19 patients. Its use allows the assistance of a larger number of people even with the reduced number of professionals, minimizes the overload of presential assistance in the public service, does not require to wait for the return of elective health care, extinguishes the risk of infection and dissemination of COVID-19, and enables a service without the need to move patients, thus allowing greater safety for all<sup>14</sup>. However, there are still some barriers in relation to the use of telerehabilitation, such as patients' unfamiliarity with technologies and often lack of financial resources to acquire them. However, this type of rehabilitation is promising and should be encouraged by government initiatives considering the potential benefits it can bring.

As in any rehabilitation process, adherence to treatment is essential and the strategies adopted by the professional directly impact the success of rehabilitation. Therefore, it is necessary that the rehabilitation services and the professionals involved restructure, develop well-established protocols and routines, respecting the individuality of each patient, and basing on the best assessment and intervention tools, aiming to provide a positive impact on functional rehabilitation and quality of life of post-COVID individuals. And that we can reflect: Are we really looking at post-COVID individuals as we should?

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