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In response to: Simpson R and Robinson L: Rehabilitation following critical illness in people with COVID-19 infection

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We read with great interest the article by Dr Simpson and Dr Robinson intitled: *Rehabilitation following critical illness in people with COVID-19 infection*. We commend the authors for their work contemplating a structured approach to rehabilitation in the continuum of care for patients during the COVID-19 pandemic.

We would like to share our experience during the COVID-19 epidemic, which broadly supports the indications given by the Authors. We run an Intensive Rehabilitation ward (24 beds) in a Geriatric and Rehabilitation Department in the University Hospital of Parma, in the North of Italy. Our tasks also include the evaluation and early rehabilitation for patients in ICU and other Surgical and Medical wards of our Hospital, organizing transfer to our Unit or other rehabilitation facilities, giving outpatient rehabilitation services for adults and children and managing spasticity with botulinum toxin and functional surgery.

On Friday morning, February 28, our Medical staff was called to a Department reunion: our Hospital was organizing a plan to deal with the COVID-19 emergency. We were told that the 3rd floor of the building hosting our Department would have been immediately converted into a COVID ward. To guarantee isolation strategy, all other wards in the same building would have been occupied, if necessary. Ours was on the ground floor: by March the 2nd it had to be emptied. Patients were divided into three groups: those with mild disabilities were discharged home, others were transferred to territory facilities and the severe cases were transferred with us in a new ward in another pavilion. It was the Maxillo-Facial Surgery ward, now available because of the sharp drop in Surgery activities, mainly limited to urgent interventions. There, we would have tried to go on with our work with non-COVID patients.

Our previous ward became part of that incredible organizational transformation created by the Hospital Direction and its Emergency Supervisors that involved everyone and everything: over 630 beds for COVID-19 patients were made available in few weeks to deal with the shock wave of hundreds of patients. Unfortunately, our nurses were enrolled to stay in our previous ward, hence our team lost a fundamental part of its identity.

In the new ward, working spaces for rehabilitation needs had to be created: an occupational therapist and speech therapist office and two gyms were set up in the surgical medication room, along with a front office and a visitor waiting room. The new nurses tried to work at their best to adapt to the new work for patients with neurological, cognitive and orthopedic disabilities. Indeed, these patients are complex, vulnerable, often incapable of communication, hence different from the surgical patients they were used to. At first, the policy was to admit one caregiver per patient for two hours a day but, after a couple of days, in line with the new policy, caregivers were no longer allowed to access. Contacts with patients' families were maintained by telephone calls on a daily basis. Twenty-nine patients were accepted in the new ward, selected by our consultation activities in non-COVID wards. At the same time, other activities included the search for new evidence in scientific literature to discuss the best rehabilitation approaches for COVID-19 patients in the continuum of care (ICU, Post-intensive wards, medical wards). An information brochure with simple exercises for patients was one of the first documents to be produced (1, 2). It was distributed to patients with milder forms of COVID infection. Other colleagues who used to guarantee outpatient activity (now drastically suppressed) entered the COVID wards shifts group.

On March 16 we discovered that one of our patients developed COVID-19 infection. In the following days two patients, a colleague and other professionals (physiotherapists, nurses)

became positive. The staff shortage, in a group that was already reduced to the minimum, made our work practically impossible.

On March 27, again, we had to discharge or transfer our patients to other facilities after exclusion of COVID-19 infection by virological screening. On Monday morning, March 30, we started a constant presence in COVID wards to evaluate patients and guarantee early rehabilitative approach. Work is organized in small groups of physiatrists, physiotherapists and/or speech therapists, integrating experience with the evidences from the literature and constant confrontation with colleagues (Intensivists, Pneumologists etc.). Each professional has to adapt its experience and expertise to a pathology whose characteristics are still to be completely explored. Work is especially focused on brief sessions of postures and passive mobilization for patients in ICU and post-intensive wards. Attention is focused on patient tolerance to avoid any sign of discomfort (cardiac and respiratory frequency, arterial pressure and oxygen saturation are monitored). Patients in more advanced phases of recovery can work on further rehabilitation goals if tolerated: acquiring sitting position, active limbs mobilization and progressive recovery of standing position and walking reactivation. Whenever possible, simple exercise sets can be performed autonomously. The activity goes on in non-COVID wards as well (Neurology, Neurosurgery, other Surgeries and Medical Specialties) including the organization of patient transfer to remaining territory facilities with rehabilitation resources. The colleague dedicated to Pediatric rehabilitation is still working as a consultant in Pediatric and Neonatology wards and her outpatient activity has been transformed in e-consultation whenever possible. We adapted our activity and created projects where all the routine rules had been broken, trying to help patients whose necessities are still to be clearly understood. Work is still “in progress”.

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