LETTER TO THE EDITOR

Considerations in Upper Limb Rehabilitation during COVID-19 Crisis

Dear Editor

The elective surgeries have been canceled during the COVID-19 crisis, however, would previous patients' problems hold their need for specific treatment and rehabilitation? Also, could trauma and emergent conditions stop happening? We could not ignore our main purpose to decline disabilities of all patients meanwhile we are managing the worldwide life crisis of COVID-19. When it comes to the upper limb diseases and trauma, rehabilitation is an essential part of the management, therefore, postponement of process could have irreversible disabilities (e.g. joint stiffness, muscle atrophy and pain syndromes). So, concomitant of respecting to preventive principles of this challenging contagious disease, we need to continue the rehabilitation process differently (1).

Social media has a special power to assist rehabilitation team now; telerehabilitation is a rational strategy to stop contacts when the rehabilitation and its monitoring need to go on. Even when the special conditions do not allow remote approaches, parallel to respecting to personal precaution principles, some technical and administrative solutions still exist. We aim to discuss different possibilities to continue rehabilitation of upper extremity in the era of pandemic COVID-19 condition.

Tele-rehabilitation is a contactless service delivery method which allows clinical consultation, evaluation, and treatment from distance (2). Social media applications that facilitate communication during daily life provide a valuable and available opportunity for tele-rehabilitation. They require nothing other than high speed internet, smartphones, and efficient virtual applications. Telerehabilitation can be done in different formats: Synchronous or online and asynchronous offline. Of course, telerehabilitation requires some special considerations. All modalities of routine center-based rehabilitation are not feasible by tele-rehabilitation systems; establishing the rapport with the patient has different principles about netiquette; the expenses and the method of payment of tele-rehabilitation need to be defined by responsible authorities in details. Tele-rehabilitation could be preceded in different models and by principles including:

- Strategies to protect personal information of participants and taking their consent essential (3). The monetary issues should be clear before initiation of sessions for both patient and the therapist.
- The first session is usually a live video chat to evaluate the joints range of motion and assess the muscles condition (2). More online observation that requires parent education and cooperation is recommended for pediatric cases. Also, more involvement in daily life activities like playing is preferable rather than complicated education for this age group.
- Patients with similar diagnosis could be added in a group to take part in videoconferences.
- Educational digital files can be sent and received, in offline mode. It works when the patients can manage the process by themselves efficiently.
- Individual rehabilitation sessions are preferred when special considerations are required based on the evaluation and patient's willingness.
- Remote patient monitoring that could be shared with the surgeon is individualized and usually offline (4). Switching to center-based rehabilitation might be necessary by undesirable events in process of rehabilitation.
- Documentation and moderation of rehabilitation sessions should be precisely performed by one team to ensure progression to defined goals and prevent any possible complications.

The other applied technologies vary from using a portable or wearable system to virtual reality or video games and robotic systems (5-7). Although these modern technologies are interesting and their efficacy has been assessed in previous studies, the variety of musculoskeletal conditions and current lack of required logistic preparations make these as impossible options during COVID-19 crisis.

In some situations, the elimination of contacts is not possible. The recommendations for these situations include:

- Full respect to all general protection principles during every visit as patients or the therapists may be the asymptomatic carriers of COVID-19 virus. (1, 3, 8)
- Decreasing the duration and frequency of in-person sessions as much as possible
- Assigning limited rehabilitation centers with less possible therapists

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• Avoiding at home presence of physiotherapist when this situation is less controllable about protection principles. Also, avoiding sending any instrument to patient's home to decrease surface contact and the possible resulting stress.
• One patient in individual space without any other patient.
• Contactless visits with camera control and ordering the patient from another room
• Disinfecting surfaces after any session.
• Switching to tele-rehabilitation whenever it is possible
• Considering to protect psychological health of the patient through an empathic approach during the stressful emotional condition about COVID-19 crisis.

COVID-19 is ordering rehabilitation therapists like all health providers to be more cautious, flexible, empathic, realistic, and innovative to continue saving and promoting the health condition of the society. The information technology and administrative tricks are easily available, feasible and valuable resources. The best scenario, obviously, is that centers prepare themselves by protocols that are planned before this type of crisis to run fast and efficiently during real situations.

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