



## Editorial

## Telemedicine, COVID-19 and liver diseases: Revamping remote care initiatives in hepatology



Telemedicine, which literally means “healing at a distance”, is a constantly evolving method to deliver care in a remote fashion using information and communication technologies (ICTs) [1]. The rapid advancement and availability of ICTs along with the expansion of internet access to the general public through smartphones as well as portable (i.e. tablet and laptop computers) and desktop computers have served as a potent driving force for telemedicine development in recent years [2]. Advantages of telemedicine are indisputable, particularly with regard of its potential to increase access to health care service overcoming geographical barriers. Of note, in spite of its advantages, until this year the growth of telemedicine services has been somewhat less impressive than expected due to several reasons including cultural barriers, the need of proper regulations, insurance coverage, confidentiality and other issues [2]. However, the ongoing outbreak of SARS-CoV-2 Coronavirus Disease (COVID-19) have dramatically changed the scene and accelerated the widespread use of remote care approaches (i.e. telephone- and video-based consultations) in order to avoid in-person visits and prevent the spread of infection [3]. In addition, many regulatory institutions over the world are promoting the use of telemedicine by lifting restrictions on visit reimbursement as well as by facilitating electronic prescriptions [3,4]. Proper evaluation of this ongoing massive implementation of remote care once the crisis passes will provide quality metrics and will be informative of effectiveness and acceptance of telemedicine programs. If positive, these data will likely revamp this type of care worldwide.

In the field of liver diseases, there have been successful experiences with the use of different modalities of telemedicine [i.e. asynchronous telemedicine (analysis of patient's data by a single physician or multidisciplinary team), synchronous real-time patient management and tele-education] with the Extension for Community Healthcare Outcomes (ECHO) project being the more notable [5]. Created at the University of New Mexico Health Sciences Center to guide treatment of hepatitis C virus (HCV)-infected patients in rural and underserved areas, the ECHO project undertook the task of guiding primary care providers in delivering complex drug treatments to HCV patients through weekly video-conferences with specialists that allowed discussion and design of therapeutic plans. The program showed successful results as the sustained virologic responses achieved by those patients treated in primary care settings under the guidance of ECHO were similar to those observed when patients were treated by specialists [6]. Since

then, the ECHO project expanded to many states in the U.S. as well as in many other countries and was also adopted by other medical specialties [7,8]. Currently, this type of care is considered a vital tool for the goal of global elimination of HCV infection [9].

In addition to HCV management, telemedicine offers opportunities for a better management of patients with chronic liver diseases by increasing their access to tertiary care, thus improving efficiency of healthcare delivery at reasonable cost [9]. Indeed, expansion of telemedicine into other areas of hepatology is desirable and hold potential for improving management of pre- and post-liver transplant patients, patients with hepatocellular carcinoma (HCC) and patients with both compensated and decompensated cirrhosis [10–12]. In the liver transplant setting existing data suggest that use of telemedicine may expedite evaluation and listing of patients referred to liver transplant centers [13] and could improve outcomes (hospital readmissions, and quality of life) after liver transplantation [10]. In the case of HCC, telemedicine offers the possibility of multidisciplinary evaluation in virtual tumor boards leading to tailored and more effective treatments [9]. Finally, in cirrhosis, telemedicine may enhance self-care and facilitate HCC surveillance eventually preventing readmissions in recently hospitalized patients [11,14].

The current COVID-19 pandemic has forced the implementation of telemedicine actions for many liver patients. Major international societies have released recommendations encouraging the use of remote care to manage patients with all liver diseases, particularly liver transplant patients [15,16]. However, the crisis will seriously impact cirrhosis care with social distancing and isolation causing major delays in elective procedures and routine care with potential overwhelm of medical centers managing postponed and potentially decompensated patients in the upcoming months [17]. In this context, developing robust telemedicine programs and revamping remote care initiatives in hepatology will be critical. The next challenge will be how to integrate telemedicine into routine clinical care beyond the COVID-19 pandemic.

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Marco Arrese<sup>a,b</sup>

<sup>a</sup> Departamento de Gastroenterología, Escuela de Medicina, Pontificia Universidad Católica de Chile, Santiago, Chile

<sup>b</sup> Centro de Envejecimiento y Regeneración (CARE), Facultad de Ciencias Biológicas, Pontificia Universidad Católica de Chile, Santiago, Chile

E-mail address: [marrese@uc.cl](mailto:marrese@uc.cl)

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