Neurological telemedicine in the COVID-19 era

Victor Patterson

Many neurologists have used telemedicine during the COVID-19 pandemic. Studies have shown that videolinks in acute care can save personal protective equipment and protect staff. Furthermore, the telephone can provide supra-hospital care in Parkinson disease and manage patients with amyotrophic lateral sclerosis well. The primacy of face-to-face care has been dented.

Two reasons exist to use telemedicine: first, if no other way of practising is possible; and second, if using telemedicine has clear advantages over traditional face-to-face medicine. The former reason has been thrust into the limelight by the COVID-19 pandemic as restrictions of various sorts have made outpatient face-to-face consultations impossible, and many neurologists, all over the world, have started using various types of telemedicine to manage their patients.

Most papers on telemedicine in neurology (teleneurology) were published in the 20 years before the pandemic and generally showed — from coma to headache — that it could replicate everything done by face-to-face consultation, was generally liked by patients, often produced cost-savings and had a low carbon footprint. Despite these findings, before the pandemic, relatively few neurologists anywhere used telemedicine in their everyday practice.

Two main reasons probably accounted for this lack of uptake: first, there was no incentive to change practice; and second, a fear prevailed that practising telemedicine might not quite be legal. Usually the laws of individual countries governing medical practice have made no mention of whether telemedicine is legal or not. In 2017, Bahrani et al. at the All-India Institute of Medical Sciences (AIIMS) in Delhi published the results of a randomized controlled trial (RCT) showing that for outpatients with epilepsy, telephone review was superior to face-to-face review in terms of patients’ costs and number of patients retained in follow-up. RCTs are rare in teleneurology, yet these positive results were never put into practice, which was almost certainly because of concerns about the legality of telephone telemedicine.

Thus, the first key advance I want to highlight from 2020 comes not from the pages of an eminent medical journal but from the website of the Government of India. The website sets out guidelines, published in March 2020, by which telemedicine may be practised in India. Crucially, it makes the explicit statement that “A Registered Medical Practitioner is entitled to provide telemedicine consultation to patients from any part of India”. This statement effectively legitimates the practice of teleneurology and has had a hugely positive effect on how it is now being used. Other countries have similarly refined their guidance on telemedicine to make its practice easier.

Many more papers have been published this year on teleneurology than in any previous year, but it is unreasonable to expect substantial studies in the short time since the pandemic was first declared. Three short clinical pieces feature important points that deserve to be more widely known.

The first study comes from the Mayo Clinic in the USA, which has a well-established teleneurology programme and saw its clinic—user numbers increase by 2,000% during the pandemic! This paper from their Emergency Department describes how videolinks within their department can provide patient care for neurological and other presentations while reducing not only the exposure of healthcare workers to potential coronavirus situations but also the requirement for personal protective equipment (PPE). Access to videolinks within patients’ rooms enabled the vast majority of ‘checking’ visits to be carried out remotely, and they estimated that over an 11-week period this approach saved PPE costs from the 3,508 virtual visits made. This study is an example of the second reason to use telemedicine — where it has a clear advantage over traditional face-to-face medicine.

Northern Italy bore the early brunt of COVID-19 in Europe, and in Milan patients with Parkinson disease were prevented from travelling to hospital. Cilia and colleagues describe their approach to this problem using two different types of real-time telemedicine. First, a Parkinson disease nurse specialist (PDNS) contacted the patient by telephone, filled in a questionnaire and was able to deal with any problems in two-thirds of cases. Of the remaining patients, one-third were referred to a neurologist, with the rest going to other members of the multidisciplinary team. The neurologist then used a videolink to contact the patients at their home so that only about 1 in 45 patients who were originally contacted by the PDNS ended up with a face-to-face consultation. The remarkable thing about this study is that the PDNS service, ParkinsonCare, is a national, free-to-access service that is not associated with any individual hospital, thus demonstrating the potential of telemedicine to deliver services easily across hospitals and even nationally.

Another paper concerns the management of patients with amyotrophic lateral sclerosis (ALS). When their patients with ALS were quarantined in Southern Italy, Capozzo and...
colleagues set out to provide them with a multidisciplinary telemedicine service. They initially planned to use video consultation but all 31 patients refused, mostly because they did not own a computer or smartphone. This issue is important as considerable numbers of people across the world cannot participate in video calls because they do not have either the requisite equipment or the technological knowhow. Instead, Capozzo et al. used the telephone and found that they could manage the patients remarkably well and that 90% of patients would prefer to be managed this way in future. Not only does this study show the strength of telephone communication, but it also makes one wonder whether face-to-face appointments for patients with severe neurological disabilities exist for the benefit of the patient or the benefit of the neurologist.

Finally, a how-to-do-it paper from someone who has been doing videolink teleneurology for many years in Scotland is notable. There is a technique to teleneurology just like everything else in neurology, and studying it brings benefits. The authors set out how to get the best of both high-end equipment in a hospital setting and commercially available software for home use. They recorded a 3,000% increase in home video calls in all specialties in Scotland in the first weeks of the pandemic and emphasize that the real-time technical support so essential for high-end video conferencing can be delivered nationally rather than by individual hospitals.

In this Year in Review there is one striking omission: hardly any papers on asynchronous teleneurology using email, webservers or smartphone applications were published in 2020. These technologies have a big advantage over real-time methods (such as the phone and video conferencing) as they usually take less of a neurologist’s time. Perhaps their potential will be realized in coming years as well as further applications of synchronous teleneurology now that many more neurologists all over the world are using these approaches.

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Competing interests
The author declares no competing interests.