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Editorial

Tele-Neurology: One Silver Lining on the COVID Dark Cloud

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As the year 2020 limps to a close one reflects on the madness and mayhem that this year has been all of us globally. Little did we know in January 2020 what lay ahead of us throughout the globe. Little did we imagine that a small virus outbreak in Wuhan, China would engulf the whole of humanity and bring us all to our knees and bring us face-to-face with an existential threat to the human civilisation. As one still grapples with the virus and its emerging mutants with increasing uncertainty, one wishes to look at our gains from this experience despite the severe loss of lives and livelihoods that has swept across the whole wide world.

From this adverse experience the gains we have had is the ability to adapt to adversity in the way of novel modes of communicating with each other and maintaining essential services when social contact in the conventional manner became taboo and continues to remain so presently. In this scenario telehealth and particularly in our field Tele neurology became the order of the day. The concept of interactions with patients at a distance is not new and Tele neurology as an interaction mode is nearly 2 decades old. However, it was more the novelty than the custom, more a crisis use of technology than the norm. Despite having technological advances and using social media for communication using multiple virtual platforms synchronously and effectively this never translated to its being used for medical and neurological patient doctor interactions and consultations and certainly not remote examination paradigms.

Then came COVID-19 and "necessity became the mother of invention". After being paralyzed with fear and feeling incapacitated in March 2020 we gradually came out of our shells and decided to get back to work using the digital platforms. It was a trying experience and felt like walking on eggshells and we learnt by the minute and by the hour as we harnessed technology and Internet connectivity and hardware hiccoughs and gradually everything started to fall into place as we learned to work in the "new normal".

The neurology consultation:

Traditionally the neurology assessment of the patient is predominantly based on history elicitation. In a face-to-face contact in addition to the verbal history the additional non-verbal communications including facial expression and body language help to establish a meaningful doctor-patient relationship based on trust and responsibility. In the past the telephone consultations were a suboptimal alternative to the in-person interaction and now with synchronous real-time audio and video (of good quality) digital interaction proved to be not much different to the usual history elicitation process.

Way back in 2017 the American Academy of Neurology telemedicine workgroup recommendations had been working on the model curriculum to enable and facilitate physicians and neurologists to be able to work in a technologically rich environment remotely. In time Telestroke, teleradiology and several other specialties had been gradually utilizing consultations at a distance format either to deliver quality care over long distances or offer prompt clinical interventions in specific clinical scenarios. However, without this crisis coming over all of us like the tsunami, the global rollout and acceptance of Tele neurology never would have taken place.

Across the world to facilitate the neurologist-patient interaction laws have been enacted by many proactive governments like in India while others have built up national guidelines to facilitate virtual consultations and enable and empower both patients and neurologists to be able to interact in a safe, effective and legalized manner ensuring that quality of care is not compromised and patient safety and confidentiality protected and physicians do not face malpractice suits for clinical negligence claims.

The Canadian Association of Physical Medicine and Rehabilitation had undertaken significant pilot studies for virtual neurology examination as well as for musculoskeletal and orthopedic examinations before the pandemic started. In addition to video consultations, E- consultations, telephone consultations, secure messaging and email interactions, all of which, under the rubric of the virtual care platform have been trialed. Publications from Hassouna et al 2020, Ansary et al 2019, Tanaka et al 2020 lay down the recommendations for the virtual neurology examination and musculoskeletal examination in some detail. These authors not only deal with practical aspects of converting an office consultation into a remote consultation very efficiently but also provide useful practical solutions that enable a patient to use household articles like a pint of milk, an elastic band, the tip of a knitting needle, a bright torch and such like handy household objects to act as replacements for the neurology examination toolkit to have a near-realistic examination of the patient within the safety of their own homes with a fair level of diagnostic accuracy and efficiency while avoiding infection risks completely particularly for senior citizens with comorbidities.

The neurology examination:

a. The higher mental functions are very easily examined on the digital platform as the interview technique works quite well on the tele-video format.
b. The cranial nerve examination once again has significant limitations in the examination of the fundus that gives so much critical bedside information (the fundal cameras that we use in hospital remote hospital ward rounds are quite expensive and limited in supply and not a solution yet) and a detailed assessment of the vestibular system. The other aspects of the cranial nerves lend themselves to a reasonably comprehensive and accurate assessment which improves with practice.
c. Motor examination: elicitation of reflexes is clearly a limitation unless we have enablers or facilitators at the patient's end to assist in the examination with PPE. Again, a detailed Medical Research Council (MRC) assessment of power would be a limitation and alternative classification of power of various muscles need to be realized using household standard weights (a pint of milk). All other aspects of the power examination besides tone and reflexes lend themselves to an assessment.
d. Sensory examination: in an office consultation we direct our sensory examination based on the history and likewise in the virtual interaction such would also be the guiding principle.
e. Coordination: the cerebellum lends itself to a near complete assessment like at the bedside as well as on the virtual platform
f. Gait: examination of gait is very easily done with our powers of observation and the right positioning of the camera and the useful contribution of either a family member or an enabler/facilitator.
g. For diagnosis of meningitis and subarachnoid hemorrhage where signs like neck stiffness and Kernig's need to be elicited by trained medics there is the mandatory need for an in-person examination through hospital admission and assessment. (it must be emphasized that the Neurologist must make the final decision to request for an in-person examination at any time when she/he perceives that clinical care may be compromised through the digital assessment or the patient wishes to seek a face-to-face evaluation for any reason)

The neurology examination on the digital format certainly has limitations. The clear lack of the effect of touch/haptic perception is a true limitation as is the limitations of hardware (smart phone and Internet speeds). Technologists are working overtime in close partnership with Neurologists globally to develop increasingly sophisticated instruments to examine patients remotely accurately and using more cost-effective gadgets in the coming years. There is also the anxiety on the part of the neurologist (usually classed as a "traditional bunch of people" who have a conservative view of life) which should with practice diminish with time. Patients also have their own worries of dealing with technology and their own views particularly among seniors of the traditional model of a face-to-face office consultation with the neurologist.

The above barriers can easily come down with the passage of time and the necessity to be safe and keep others safe while triaging the approximately 20% who would still need to be seen face-to-face in an office or whose neurological condition would merit an inpatient admission for neuro diagnostics and further interventional care. Therefore, we would have managed to keep 80% of the present footfalls in the "bricks and mortar" neurology establishments safe and convert of them to the digital/virtual format of interaction. The virtual Tele neurology format perhaps with time will prove that we had moved away from the traditional doctor-patient interaction of relying on good history elicitation, good clinical localization based upon a detailed although modified examination (albeit limited by the virtual format as clarified above) and the overreliance on neuro diagnostics that had phenomenally pushed up the health care costs and waiting times can again be recalibrated.

With the global crisis and pandemic not coming to a halt anytime soon, adaptation to the "new norm" is the need of the hour as we evolve from traditional methods of working to new and innovative modes of delivery of care for the safety of the serving neurologist as well as the patient in seeking specialist care and advice. Anxiety among patients through not

knowing what is wrong with them is a big "killer" for the patient and the power of the neurologist's consultation in being able to allay anxiety forms the therapeutic value of an effective neurology consultation (digitally in the "new normal") which cannot be underestimated. At a time when everyone is unsure when and whether the situation will ever get back to normal even when the virus hopefully "loses its sting" in 2021 – with or without the help of the vaccine but definitely with the prevention strategies of social distancing, hand hygiene and facial coverings that have been taken up by the whole world population as measures to abide by, we should look at the future with hope and understanding and take lessons from our experience.

After this rough ride of 2020 we hope the year 2021 brings us hope. All the countless unnecessary lives that have been lost to COVID-19 would not be in vain if we neurologists and patients with neurology ailments embrace Tele neurology and learn as we go along this new path. Minor unavoidable mistakes may occur inadvertently which we should try to always avoid. However, if neurologists abide by the oath of Hippocrates and the principle of "do no harm" and patients abide by the principle of trust and faith in their neurologists, we should all be able to carry out our businesses in the "new norm" and have managed to give this malevolent virus a fitting reply as it has robbed many of us of our near and dear ones and crippled the whole world like never ever before.

Hopefully 2021 will be vastly different and nearly back to normal although we will all have been suitably chastened and aware of our vulnerabilities for any similar incursions that may occur in the future which we must tackle better.

In the meantime, let us embrace Tele neurology as it has been a good friend to me and many others in the last nine months in the routine day-to-day care of our many patients who have benefited immensely from its usage and wish us to make it our new standard of care for evermore.

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