Letter to Editor

Novel Technologies Impact on Parkinson's & Alzheimer's Patient During the COVID-19 Pandemic

Dear Editor

The very fast outbreak and spread of the COVID-19 made everybody surprised. In this case, there were two major issues: on the one hand, the high number of patients, and on the other hand, limited medical resources.[1]

COVID-19 outbreak, and the subsequent restrictions, have had a significant impact on Parkinson's and Alzheimer patients' daily-life.[2] Alzheimer patients may forget to wash their hands or take other recommended precautions to prevent CoVID-19. Parkinson's patients have a number of problems, including: unwillingness; to wash their hands due to muscle rigidity (stiffness), to go the clinic and follow-up visits due to bradykinesia, to do regular activitiessuch as physiotherapy or trained sports.[2] According to this crisis, we aimed to express how novel technologies (technology-assisted techniques) can help for rehabilitation and physical exercise to these vulnerable people more to be safe in physical contact with others.

Tisch *et al*. showed a novel diagnostic method for Alzheimer disease (AD) and Parkinson's disease (PD) through exhaled breath using the nanomaterial-based sensors. Breath prints could form the basis for the development of future cost-effective, simple, and reliable biomarkers, which could aid the diagnosis of neurodegenerative diseases such as AD and PD.[3]

Mann *et al*. in their case study show the feasibility and impact of telemedicine use among patients and providers of urgent and nonurgent health care delivery from one large health system during the COVID-19 in states. They denoted that the COVID-19 has changed the perspective of medical traps with breathtaking speed. Currently, without vaccines or effective treatments, telemedicine is the only way to access medical interventions from a distance.[4]

The results of de Lima *et al*., showed falling is among the most serious clinical problems in PD. They used body-worn sensors to quantify the hazard ratio (HR) of falls in PD patients in real life. A telephone contact immediately after the fall. This enabled us to robustly quantify the HR of falling of PD participants in daily life. This large-scale study determined the real-life incidence of falls using a wearable system, with all reported falls being confirmed by the faller during a telephone contact immediately after the fall.[5]

A randomized clinical trial showed in a sample of 500 patients (half used smartphone and rest wearable devices), the rates of patient death and overall dropout including death were similar. They concluded, although wearables follow behaviors that smartphones do not do (for example, sleep), but because smartphones are broader and more general, can be a scalable device for telemonitoring patient health behaviors.[6]

In this regard, mobile and wearable technologies present a unique opportunity to massively detect neurodegenerative diseases in a timely and economical fashion. Technologies that are able to detect, monitor, diagnose, and prognosis AD are an urgent need.[7]

Conclusion

Therefore, telehealth is able to warn, remind, detect, monitor, measure the clinical symptoms and signs and must be used in the COVID-19 crisis. To keep people, especially vulnerable groups, at home and prevent the spread of the COVID-19 further, the use of virtual care and monitoring of people can be one of the best ways to deal with the COVID-19 crisis. Tele-rehabitation, smart phone applications, and wearable sensors are some of these technologies.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Federico A. Experiencing COVID19 pandemic and neurology: Learning by the recent reports and by old literary or scientific descriptions. Neurol Sci 2020;41:1323-7.
2. Schirinzi T, Lazzaro GD, Salimei Ch, Cerroni R, Liguori C, Scalise S, *et al*. Physical activity changes and correlate effects in patients with Parkinson's disease during COVID-19 lockdown. Mov Disord Clin Pract 2020. doi: 10.1002/mdc3.13026.
3. Ulrike T, Ilana S, Radu I, Maria N, Noa A, Dorina R, *et al*. Detection of Alzheimer's and Parkinson's disease from exhaled breath using nanomaterial-based sensors. Nanomedicine (Lond)

2013;8:43-56.

4. Mann DM, Chen J, Chunara R, Testa PA. COVID-19 transforms health care through telemedicine: Evidence from the field. J Am Med Inform Assoc 2020;27:1132-5.
5. de Lima ALS, Smits T, Darweesh SKL, Valenti G, Milosevic M, Pijl M, *et al*. Home-based monitoring of falls using wearable sensors in Parkinson's disease. Mov Disord 2020;35:109-15.
6. Patel MS, Polsky D, Kennedy EH, Small DS, Evans CN, Rareshide CAL, *et al*. Smartphones vs wearable devices for remotely monitoring physical activity after hospital discharge: A secondary analysis of a randomized clinical trial. JAMA Netw Open 2020;53:e1920677.
7. Kourtis LC, Regele OB, Wright JM, Jones GB. Digital biomarkers for Alzheimer's disease: The mobile/wearable devices opportunity. NPJ Digit Med 2019;2:9. doi: 10.1038/s41746-019-0084-2.

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