Indian Academy of Pediatrics (IAP)

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UNDER THE AUSPICES OF THE IAP ACTION PLAN 2023

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Child neurology telemedicine: Analyzing 14820 patient encounters during the first year of the COVID -19 pandemic.

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BASED ON ARTICLE

Kaufman MC, Xian J, Galer PD, Parthasarathy S, Gonzalez AK, McKee JL, et al. CHOP Neuroscience Center – Telemedicine Research Group. Child neurology telemedicine: Analyzing 14820 patient encounters during the first year of the COVID -19 pandemic. Dev Med Child Neurol. 2023;65(3):406-415. https://doi.org/10.1111/dmcn.15406

ABSTRACT

Aim: To determine the long-term impact of telemedicine in child neurology care during the COVID-19 pandemic and with the reopening of outpatient clinics.

Method: An observational cohort study of 34 837 in-person visits and 14 820 telemedicine outpatient visits across 26 399 individuals was performed. Differences in care across visit types, time-period observed, time between follow-ups, patient portal activation rates, and demographic factors were assessed.

Results: A higher proportion of telemedicine for epilepsy (International Classification of Diseases, 10th Revision G40: odds ratio [OR] 1.4, 95% confidence interval [CI] 1.3-1.5) and a lower proportion for movement disorders (G25: OR 0.7, 95% CI 0.6-0.8; R25: OR 0.7, 95% CI 0.6-0.9) relative to in-person visits was observed. Infants were more likely to be seen in-person after reopening clinics than by telemedicine (OR 1.6, 95% CI 1.5-1.8) as were individuals with neuromuscular disorders (OR 1.6, 95% CI 1.5-1.7). Self-reported racial and ethnic minority populations and those with highest social vulnerability had lower telemedicine participation rates (OR 0.8, 95% CI 0.8-0.8; OR 0.7, 95% CI 0.7-0.8).

Interpretation: Telemedicine continued to be utilized even once in-person clinics were available. Pediatric epilepsy care can often be performed using telemedicine while young patients with neuromuscular disorders often require in-person assessment. Prominent barriers for socially vulnerable families and racial and ethnic minorities persist.

COMMENTARY

Telemedicine was swiftly adopted in the COVID -19 pandemic for non-urgent outpatient care including care of children with neurological disorders. Child neurology assessments require physical examination for accurate diagnosis and adequate care, for which in person visits are essential. Initially

telemedicine was the only solution and many studies described its feasibility. However, the impact of telemedicine on care had not been fully assessed, particularly when in-person visits became available along with telemedicine.

The aim of this study was to determine the overall utility and long-term impact of telemedicine in child neurology care through 4 phases – 1. Pre pandemic phase with no telemedicine; 2. During 'shut down' phase with only telemedicine; 3. 'Ramp-up' phase when in-person visits were reintroduced; 4. Steady state phase after complete reopening of outpatient clinics and in person visits accounted for more than 50% of consultations.

This large cohort study was carried out at a pediatric specialty care network including child neurology program with 32,000 visits per year. The authors analysed differences in long term impact for children with neurological disorders between in person and telemedicine visits with emphasis on variation across age, patient diagnosis, visit type, time period between follow up visits, patient portal activity, demographic & societal factors and outcome. Trends in telemedicine emphasizing patient suitability and health disparities were studied.

Telemedicine was used more frequently by individuals with epilepsy and ADHD for ongoing management, while in-person visits were preferred for migraine, neuromuscular or movement disorders. Infants and young children were more likely to be seen in-person.

Specific obstacles in obtaining equitable care were determined using 2 novel metrics – measurement to assess delayed care and measurement to determine barriers to accessing telemedicine. Care was delayed by more than 50%. Individuals from highly socially vulnerable families were more likely to miss their follow up care window.

The limitation of this study was that the impact of telemedicine on outcomes was not obvious. Further research is required. The importance of physical examination in accurate diagnosis and adequate care in child neurology, emphasizes the need for a hybrid model where telemedicine is a stable complementary component forming a bridge between in person visits.

IMPLICATIONS FOR PRACTICE

1. With an emphasis on Digital Health, telemedicine is being practised in India using the Telemedicine Practice Guidelines since March 2020. Universal access to a smart phone has made telemedicine a possibility for all.
2. A substantial proportion of Pediatric Epilepsy care, particularly for already diagnosed patients, can be provided effectively using telemedicine. This should be vigorously promoted with an aim to improve quality of care and reduce clinician access related treatment gap.1
3. For Migraine, Neuromuscular and Movement disorders and most other conditions requiring clinical examination, in person visits are essential.
4. Initial evaluation of any neurological disorder should be done in person and intermittent follow up care can be through telemedicine.
5. Infants and small children should be seen in person.
6. Cost effectiveness, infrastructure, location, language and social barriers, financial constraints and the disease condition itself may be an obstacle to teleconsultation. Medical education curricula should include telemedicine training.[2]

7. Further research is required to assess the accessibility, cost effectiveness and specific role of telemedicine in child neurology in various clinical settings, age groups and situations in our country.

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