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Research Letter

RESEARCH LETTER

Home-Videos for Neurodevelopmental Follow-Up of High-Risk Infants during COVID-19 Pandemic: A Simple and Inexpensive Tool

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Coronavirus disease-19 (COVID-19) pandemic has posed an unprecedented challenge to healthcare systems globally which are struggling to provide optimal care to patients with or without COVID-19. Rerouting of resources for COVID-19, widespread impositions on public movement, and fear of COVID-19 have resulted in significant disruption of routine essential health services. Routine immunization and follow-up visits of high-risk neonates and infants for early identification of developmental delay and early intervention have also been impacted. Early diagnosis and intervention are known to positively influence the neurodevelopmental outcome in high-risk neonates and infants [1]. The majority of these high-risk infants eventually evolve to have cerebral palsy (CP) which is an umbrella term to accommodate any type of static neuromotor impairment. The validated tools for early diagnosis of CP include the Hammersmith Infant Neurological examination, magnetic resonance imaging, and general movement assessment (GMA); one of the best being GMA with a sensitivity and specificity of up to 95% [1]. The identification of abnormal general movement patterns including; poor repertoire and cramped synchronized movements on the GMA when conducted longitudinally can direct initiation of intensive early intervention measures [2, 3]. The utility of GMA has been highlighted during the current COVID-19 pandemic where physical visits and face to face consultations are quite difficult. GMA is less time-consuming, doesn't require costly equipment, and offers a unique advantage of prediction of neurodevelopmental outcome from video recordings without the child being physically present. We would like to share our experience in this regard.

A study on the utility of GMA in predicting adverse neurodevelopmental outcomes in children with hyperbilirubinemia was being conducted at our

center when the pandemic struck. Due to difficulties in patient access, we continued telephonic follow-up along with the evaluation of home-videos during the COVID-19 pandemic from April 2020 to mid of June 2020 (including the lockdown period). Eleven infants were scheduled for follow-up during the specified period. They were contacted and requested to send home-videos following set instructions. Prerequisites included brief videos (around 2 min duration) in a well-lit room with the baby being awake with active movements (not crying), lying supine with a small cotton-nappy and/or short-sleeved light clothing [3]. Videos, made on any smartphone or video camera from a distance of 1–2 m with the infant lying on a flat surface, were admissible if the quality was good (baby and the movements could be well-visualized). YouTube links of some sample videos were sent to guide the caregivers. Patient videos were shared with investigators via WhatsApp (an end-to-end encrypted application), were reviewed subsequently, and if they were deemed inappropriate, parents were counseled and asked to make videos again. Some families belonged to poor socioeconomic status with low literacy and hence had difficulties in following instructions. Caregivers of seven infants could send good quality home-videos in one go, three in two attempts and one after four attempts. Hence, the follow-up good quality videos could be obtained in all patients. Therefore, GMA using home-videos may be a simple and easy follow-up means for neurodevelopmental assessment in high-risk infants amid the COVID-19 pandemic. Also, the advice for early intervention was also provided by teleconsultations. The occupational therapist and physiotherapist communicated with the parents through video calls. They shared YouTube video links of therapies during video calls while the parents demonstrated the exercises and interventions they were doing, and the therapists corrected them.

Assessment of two videos at different postmenstrual age (one at 44–48weeks and the other at 50–56 weeks) for reliable prediction of neurodevelopmental outcome and for other early markers of CP such as scissoring, rhythmic tongue thrusting, up-gaze palsy etc. was planned for this study [4, 5]. In the current cohort of 11 children assessed during the specified period, all were follow-up videos made at an age of 50–56 weeks. The neurodevelopmental outcome of this cohort can be commented at the end of this study after these children attain 12 months of age. In this era of the COVID-19 pandemic where routine hospital visits for detailed neurodevelopmental assessment are not possible, GMA using home-videos can prove to be a feasible tool for trained developmental pediatricians, neonatologists, and pediatric neurologists. This can even be utilized in low- and middle-income countries like India. We advocate for increasing familiarity with this useful inexpensive modality of GMA as a routine practice that is still in infantile stages in developing countries like ours.

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