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Molecular survey of non-culturable enteroviruses present in feacal samples of children with acute flaccid paralysis

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Despite WHO declaration in 2016 that Nigeria has been removed from the list of polio endemic countries, Acute Flaccid Paralysis (AFP) caused by Enteroviruses remains an important clinical presentation in the country. The objective of the study was to retrieve and identify Human Enteroviruses (HEV) from faecal samples of children with AFP whose faecal samples were inoculated on healthy monolayer L20B and RD cell lines but showed no cytopathic effect. Purposive consecutive sampling methods were used to collect 1260 feacal samples (achieved between the period of 2015 to 2016) from children (0 to 15years) with AFP living in the rural area of North-Western Nigeria. The study determined the prevalence of non-cultureable HEV species from children with AFP using Reverse Transcriptase semi-nested Polymerase Chain Reaction (RT-snPCR) and BigDye sequencing method. Overall, enteroviruses from three different species fo Enteroviruse were retrieved and identified: Specie A, B and C. Coxsakieviruses had the (highest) prevalence of 61.5%, Enterovirus-99 had prevalence of 23.7%, Enterovirus-2 had prevalence of 7.6% and Poliovirus had prevalence of 7.6%. Recombination analysis from this study showed that the circulating CVA-19 recovered from this study is recombined (87 % nucleotie similarity in the VP1 region) with Poliovirus-2 which was last isolated in 2006, consequently this have contributed to a fall in the control strategy and outbreak of recombinant form of Poliovirus in the Northern Nigeria. This study first document, identify and characterize CV-A10 in Nigeria and it first describe the molecular sequence of the isolate in Nigeria. Furthermore, this study first record and show evidence of cases of recombination between non-polio enterovirus-C (NPEV-C) (most especially CVA-17 and CVA20 retrieved in this study) and Sabin Poliovirus-2 in northern Nigeria.

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