5-7 September 2011 Baltimore, USA



Molecular detection

and characterization

of novel pandemic

Swine flu H1N1

epidemics

P.V.L. Rao

virus from India

during 2009-2010

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The development of accurate and rapid diagnosis is critical for minimizing further spread through timely implementation of control measures. A one -step single tube accelerated and quantitative S-OIV specific H1 RTLAMP assay is developed for clinical diagnosis of S-OIV by targeting the HA gene. The S-OIV RTLAMP was 10 fold more sensitive than WHO real-time RTPCR with a detection limit of 0.1 TCID $_{50}$ /ml. The comparative evaluation of RTLAMP assay vis-a-vis WHO real-time RTPCR was undertaken with 1000 acute phase throat swab samples. The SOIV RTLAMP demonstrated exceptionally higher sensitivity by picking up more additional positive cases amongst the negatives that were further sequence confirmed. The overall sensitivity and specificity of the S-OIV specific H1 RTLAMP was 93% and 100% respectively.

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Further genetic diversity of the pandemic H1N1 viruses was studied through 188 bp partial HA gene sequence phylogeny. The phylogenetic analysis of pandemic H1N1 viruses of Gwalior region revealed 99.7% similarities with California and other circulating novel swine flu viruses. 3 Major changes were observed at nucleotide level, while two major amino acid shifts were observed at the position C9W and I30M corresponding to the ORF with prototype strain. The phylogenetic analysis revealed the circulation of two genetically distinct lineages belonging to clade *VII* and *I* of S-OIV in central India during the 2009 and 2010 epidemics. Thus genetic diversity of these H1N1 viruses warrants continuous monitoring of the genetic makeup of this newly emergent virus to understand its evolution within the country.

Biography

Dr Manmohan Parida is presently working as a senior scientist in Defence Research and Development Establishment in the field of advanced molecular diagnostics and epidemiology of circulating viruses for last 15 years. He has completed his Ph D from Jiwaji University, Gwalior in Microbiology in 2002. He has also worked as Monbusho Fellow and post doctoral researcher at Institute of Tropical Medicine, WHO reference centre for research on arboviruses under Nagasaki University, Japan. He has published more than 55 research papers in national and international journal of high repute. He has seven Indian and one Japanese patent to his credit.