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Loss and gain of N-linked glycosylation sites in globular head and stem of HA found in A/H3N2 flu fatal and severe cases during 2013 Tunisia flu seasonal survey

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Tunisia

In Tunisia influenza, IRVA and SARI epidemiological sentinel type surveillance system presented by the National Influenza Center (NIC) situated at the Charles Nicolle Hospital Tunis, was created with the support of the World Health Organisation and adjusted to the requirements of WHO and CDC. In order to apply different protocols available to study circulating influenza viruses, Tunisian National Influenza Laboratory is equipped with modern equipment including molecular biology techniques. Glycosylation on the globular head of the hemagglutinin (HA) protein of influenza virus acts as an important target for recognition and destruction of virus by innate immune proteins of the collectin family. In the current study, we have characterized the dynamic amino acid changes at N-linked glycosylation sites of full length sequences of HA genes of five A/H3N2 Tunisian strains isolates from mild, severe, and fatal cases. Compared to the reference strain, A/Perth/16/2009 substitutions in potential N-glycosylation sites were observed in five HA genes at five different positions (45, 124, 128, 144, and 145) generating the losses and gains of N-linked glycosylation sites. Also the mutation N145S was presented in the receptor-binding site of all segments analyzed. Point mutations in several positions in the gene encoding the H3 of Tunisian strains were shown to ablate a glycan attachment site and also loss of a potential glycosylation site. The relation between these mutations and virulence of influenza A/H3N2 virus needed to be verified in the further experiments.

Biography

Awatef El Moussi, Ph.D in Biology. Originally, I am a Professor of Biological Sciences and I have a Master in Microbiology (Specialist in Virology) in 2007. Now I am doing research on Influenza virus at National Influenza Centre-Tunis, Unit Virology, Microbiology Laboratory, Charles Nicolle's Hospital, Tunisia. I got my PhD degrees in 2014 and Post Doctoral studies in my laboratory to genotyping HIV virus in Tunisia. Dr. Mohamed Ali Ben Hadj Kacem, Medical Doctor, Associate professor in Virology Unit of Microbiology Laboratory, Charles Nicolle Hospital and Manager of National Influenza Centre-Tunis. Dr. Amine SLIM Professor in Virology and head of the Microbiology Lab in February 2010. He assumed the charge of General Secretary of The Tunisian Society of Clinical Biology from 1989 to 1995, and Secretary General of the Tunisian Infectiology Society (from 1999 to 2005). He had to manage the National Influenza Centre from 1983 and upgrade the virology department. The virology unit becomes national Lab Centre for HIV in 1986 and for Measles and Rubella in 1998 and start molecular biology in 2000 for HIV.

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