Studies on H1N1 vaccine-induced monoamines alternations and oxidative stress on brain of adult mice

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INTRODUCTION

New communicable disease influenza A (H1N1) affected geographically diverse areas around the world in 2009. Person to person transmission has led to increase the numbers of patients. The current H1N1 virus, which was previously referred as Swine Flu is totally a new virus subtype. This new virus subtype is efficiently able to be transmitted from human to human which may cause Pandemic Influenza (Gangurde et al., 2011). Influenza virus infection, one of the most common infectious diseases, is a highly contagious airborne disease that causes an acute febrile illness and results in variable degrees of systemic symptoms, ranging from mild fatigue to respiratory failure and death. These symptoms contribute to significant loss of workdays, human suffering, mortality, and significant morbidity (Islam and Rahman, 2010). Strategies to shorten the time between emergence of a human influenza pandemic virus and the availability of safe and effective pandemic influenza vaccines are of the highest priority in global health security. There are limited immunogenicity and safety data, and no efficacy data would be available when human pandemic influenza vaccines are first administered after a pandemic is declared.

The risks and benefits of pandemic influenza vaccine will need to be studies post marketing (Bouvier and Palese, 2008). Vaccines contain live viruses, killed viruses, purified viral proteins, inactivated bacterial toxins, or bacterial polysaccharides. In addition to these immunogens, vaccines often contain other substances. For example, vaccines may contain preservatives that prevent bacterial or fungal contamination (eg, thimerosal); adjuvants that enhance antigen-specific immune responses (eg, aluminum salts); or additives that stabilize live, attenuated viruses (eg, gelatin, human serum albumin).

Furthermore, vaccines may contain residual quantities of substances used during the manufacturing process (eg, formaldehyde, antibiotics, egg proteins, yeast proteins) (Offit and Jew, 2003).

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