

Anti-NMDA Receptor Encephalitis, Human Papillomavirus, And MicroRNA.

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Abstract:

Background: Anti-N-methyl-d-aspartate (Anti-NMDA) receptor encephalitis is a rare autoimmune disease, which is caused by antibodies attacking NMDA receptors in the brain. Previous studies revealed that this disorder might be induced by vaccination. Vaccination is the most useful strategy to prevent human or animal infectious diseases.

Materials and Methods: Although vaccines can produce immunity against diseases, at low risk, they may trigger serious adverse events. Anti-NMDA receptor encephalitis has been studied to be related to the H1N1 (influenza A virus subtype H1N1), tetanus/diphtheria/ pertussis and polio vaccine, Japanese encephalitis, yellow fever, and coronavirus disease 2019 (COVID-19) vaccination. Several cases have been reported that anti-NMDA receptor encephalitis could also be triggered by the human papillomavirus (HPV) vaccine. However, there is a lack of studies to investigate the underlying mechanism.

Result: In this paper, the association between anti-NMDA receptor encephalitis and HPV vaccination is discussed in terms of their microRNA (miRNA) biomarkers. Phylogenetic tree and distance similarity analyses are used to explore the relationship between their miRNA biomarkers. The results show a higher degree of similarity between miRNA biomarkers associated with HPV and anti-NMDA receptor encephalitis or related vaccines when compared to the overall miRNAs. It indicates that while the risk of HPV triggering anti-NMDA receptor encephalitis is low, a connection between anti-NMDA receptor encephalitis and HPV vaccination cannot be ruled out.

Conclusion: This finding suggests that in cases where individuals receiving HPV vaccination experience psychiatric or neurological symptoms, it should be considered to diagnose anti-NMDA receptor encephalitis, given the exclusion of other possible complications.



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