Detection of Respiratory Syncytial Virus (RSV) and Influenza A and B Viral Infections in COVID-19 Negative Individuals in Oyo State Nigeria

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Certification

This is to certify that **Adefunke Iyabo AKINOLA** with Matriculation number **LCU/PG/000265** carried out this research work titled "Detection of Respiratory Syncytial Virus (RSV)" and "Influenza A and B Viral Infections in COVID-19 Negative Individuals in Oyo State Nigeria" in the Department of Biological Sciences, Faculty of Natural and Applied Sciences, Lead City University, Ibadan, Oyo State, for the Award of Master Degree (MSc) in Molecular Biology with Genomics and that this has not been previously submitted.

Dr. T.Y. Raheem **(Supervisor)**	**Date**
Dr F.C. Adesina **(Head of Department)**	**Date**

Dedication

This research work is dedicated to the Almighty God, who sustained me throughout the time of doing and writing it.

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Even though the above-mentioned institutions and persons have assisted in the process of this research work, I alone stand responsible for the errors, if any, found in the work.

Abstract

Respiratory Syncytial virus (RSV), an enveloped, non-segmented RNA, is one of the most common causes of severe respiratory infections in children and older adults worldwide. This study investigated RSV and Influenza Viruses A and B in older adults and children aged 5 and below who tested negative for COVID-19. A total number of 206 COVID-19 negative samples were tested, viral RNA was extracted using a QUIGEN RNA Purification kit and Real time PCR was performed using an Allplex^{TM} RSV/Flu A/Flu B kit. Results showed a mean age of 2.97 for children and 33.50 for adults. There was a negative association between gender and infections with RSV (P-value 0.589) and influenza B (p-value 0.250) both ≥ 0.05 in children, but a positive association in adults. (p-value, $0.000 \leq 0.005$). Approximately, 52.0% of the total participants were from Oyo South while 37% from Oyo central and 5% from Oyo North, 6% did not disclose their location. The prevalence of influenza B and RSV in children 2.8% each was in Oyo Central, while in adults, the prevalence of influenza A and B, 1% each was in Oyo Central and Oyo South, and 2.0%; RSV, 1. % from Central and 1% from those who did not disclose their location. There was no positive association between location and outcome of infection with RSV and Influenza B (p- value 0.482). The prevalence of RSV in children was 2.8%, Influenza A was 0% and Influenza B was 2.8%, while in older adults, RSV was 2% and influenza A and B were 1% each. This study detected RSV, influenza A and B viral infections in COVID-19-negative individuals. There is a need to investigate other possible etiologies of respiratory tract infections in Sars -cov-2-negative symptomatic individuals.

Keywords: Prevalence, infections, RSV, RNA, Influenza.

Word Count: 293

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Lists of Acronym

Abbreviation	Meaning
RSV	Respiratory Syncytial Virus
WHO	World Health Organization
USA	United State of America
SSPE	Subacute Sclerosing Panecephalitis
CHD	Congenital Heart Abnormalities
BPD	Bronchopulmonary Dysplasia
PHSMs	Public Health and Social Measures
NCDC	Nigeria Center for Diseases Control
LUTHVL	Lagos University Teaching Hospital Virology Laboratory
LRTI	Lower Respiratory Tract Infection
IAV	Influenza A Virus
IBV	Influenza B Virus
IFIT	Interferon – Induced Protein with Tetratricopetide
CD4	Cluster Differentiation Four
CD8	Cluster Differentiation Eight
CPA	Canadian Paediatric Society
CCA	Chimpanzee Coryza Agent
UK	United Kingdom