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Exploring microorganisms associated to acute febrile illness and severe neurological disorders of unknown origin: A Nanopore metagenomics approach**Keldenn Melo Farias Moreno***Federal University of Minas Gerais, Brazil*

Statement of the Problem: Acute febrile illness (AFI) and severe neurological disorders (SNDs) often present diagnostic challenges due to their potential origins from a wide range of infectious agents. Nanopore metagenomics is emerging as a powerful tool for identifying the microorganisms potentially responsible for these undiagnosed clinical cases. In this study, we aim to shed light on the etiological agents underlying AFI and SND cases that conventional diagnostic methods have not been able to fully elucidate. **Methodology & Theoretical Orientation:** Our approach involved analyzing samples from fourteen hospitalized patients using a comprehensive nanopore metagenomic approach. This process included RNA extraction and enrichment using the SMART-9N protocol, followed by nanopore sequencing. Subsequent steps involved quality control, host DNA/cDNA removal, de novo genome assembly, and taxonomic classification. **Findings:** Our findings in AFI cases revealed a spectrum of disease-associated microbes, including *Escherichia coli*, *Streptococcus* sp., Human Immunodeficiency Virus 1 (Subtype B), and Human Pegivirus. Similarly, SND cases revealed the presence of pathogens such as *Escherichia coli*, *Clostridium* sp., and Dengue virus type 2 (Genotype-II lineage). This study employed a metagenomic analysis method, demonstrating its efficiency and adaptability in pathogen identification. **Conclusion & Significance:** Our investigation successfully identified pathogens likely associated with AFI and SNDs, underscoring the feasibility of retrieving near-complete genomes from RNA viruses. These findings offer promising prospects for advancing our understanding and control of infectious diseases, by facilitating detailed genomic analysis which is critical for developing targeted interventions and therapeutic strategies.

Biography

Tatiani Fereguetti graduated in medicine from José do Rosário Vellano University (2009). Medical residency in infectious diseases at Eduardo de Menezes Hospital (2013). Supervisor of the infectious diseases medical residency program at Eduardo de Menezes Hospital (2013-2018). Municipal coordinator of sexual health and care for STIs/AIDS/Viral Hepatitis in Belo Horizonte (2015-2019). Medical director and care manager at Eduardo de Menezes Hospital (In office since 2019). Assistant professor at the Faculty of Medical Sciences of Minas Gerais, in the medical course - Lucas Machado Foundation (FELUMA) (2019-2021). Master's degree in Health Sciences Infectology and Tropical Medicine from the Faculty of Medicine of the Federal University of Minas Gerais (2021-2024). Postgraduate degree in Management and Lean Six Sigma Operational Excellence from Albert Einstein Hospital (starting in 2024). Leadership Development Program at SETEC (starting in 2024). She is especially engaged in public health and innovation.