

# The Impact Of Non-Indicated CSF Testing On The True Incidence Of Viral Encephalitis –A Single-Centre Retrospective Study

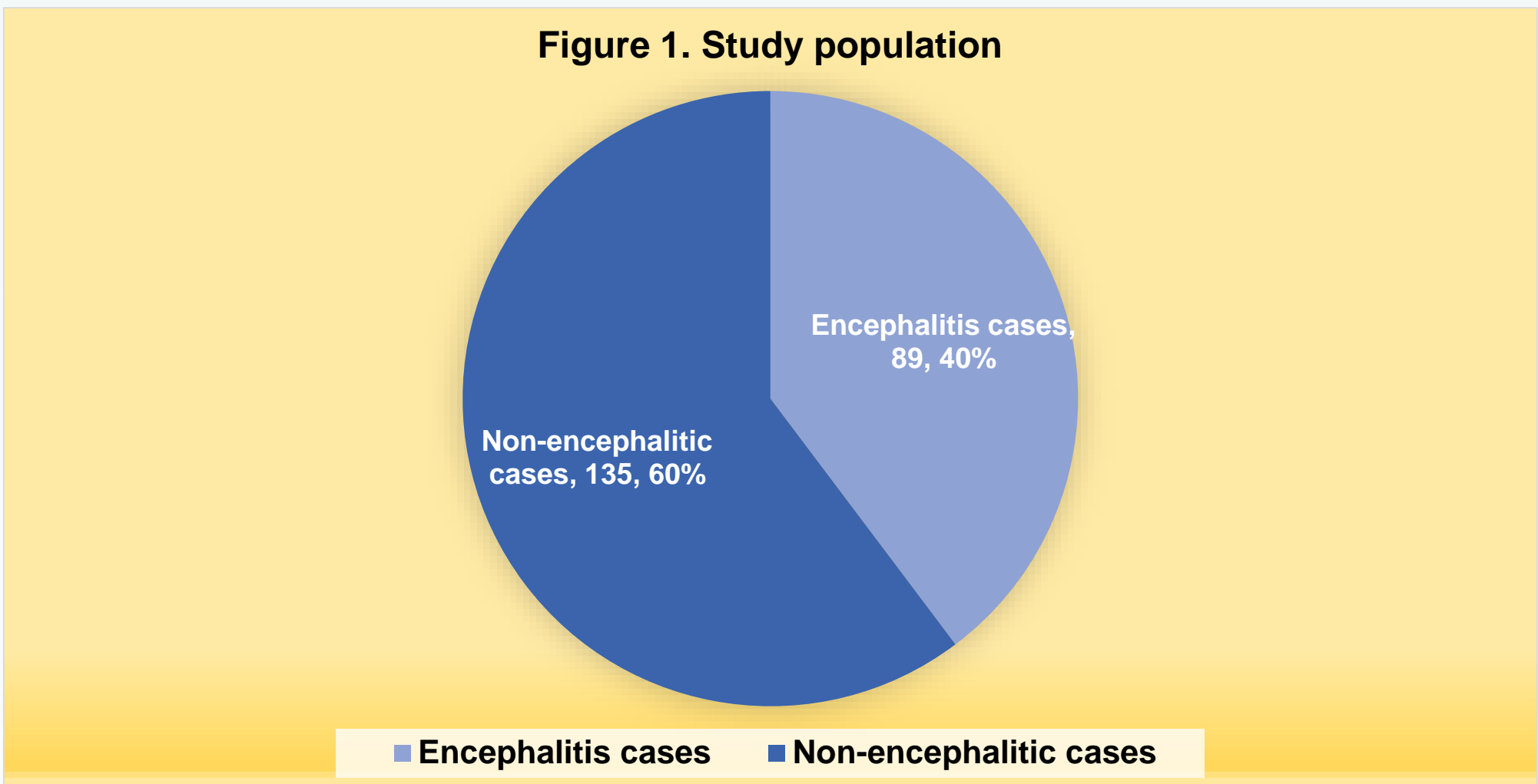
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## Background

- ❖ Timely and accurate diagnosis is essential in viral encephalitis, as delayed recognition can result in devastating neurological outcomes [1].
- ❖ Molecular assays now allow rapid and precise detection of a wide range of viral pathogens in cerebrospinal fluid (CSF) [2].
- ❖ However, there is a growing trend toward syndromic testing panels or ordering multiple tests, often in the hope of detecting at least one positive pathogen [2].
- ❖ Inappropriate or indiscriminate CSF sampling, however, may underestimate the true incidence of viral encephalitis and lead to diagnostic uncertainty [1].
- ❖ Diagnostic stewardship has emerged as a strategy to optimize the ordering, interpretation, and reporting of microbiological tests, ensuring both clinical utility and resource efficiency [3,4].
- ❖ Unnecessary tests not only alleviates the burden on microbiology laboratories but also helps control healthcare costs [3,4].
- ❖ Against this background, our study aims to evaluate the ordering patterns of CSF viral testing and to estimate the true incidence of Herpes Simplex virus (HSV) and Varicella Zoster virus (VZV) encephalitis in adults with compatible clinical features.

## Methods

- ❖ Study design: Retrospective analysis
- ❖ Study setting: National Hospital, Galle
- ❖ Study period: December 16, 2023 – December 15, 2024
- ❖ Population: Adult patients with CSF specimens submitted for viral testing
- ❖ Case definition of clinical encephalitis :Based on British Neurologists & British Infection Association (BIA) National Guidelines
  - ✓ Altered consciousness >24 hours and/or seizures, plus
  - ✓ At least one of: fever, focal neurological signs, CSF pleocytosis, EEG/MRI features of encephalitis

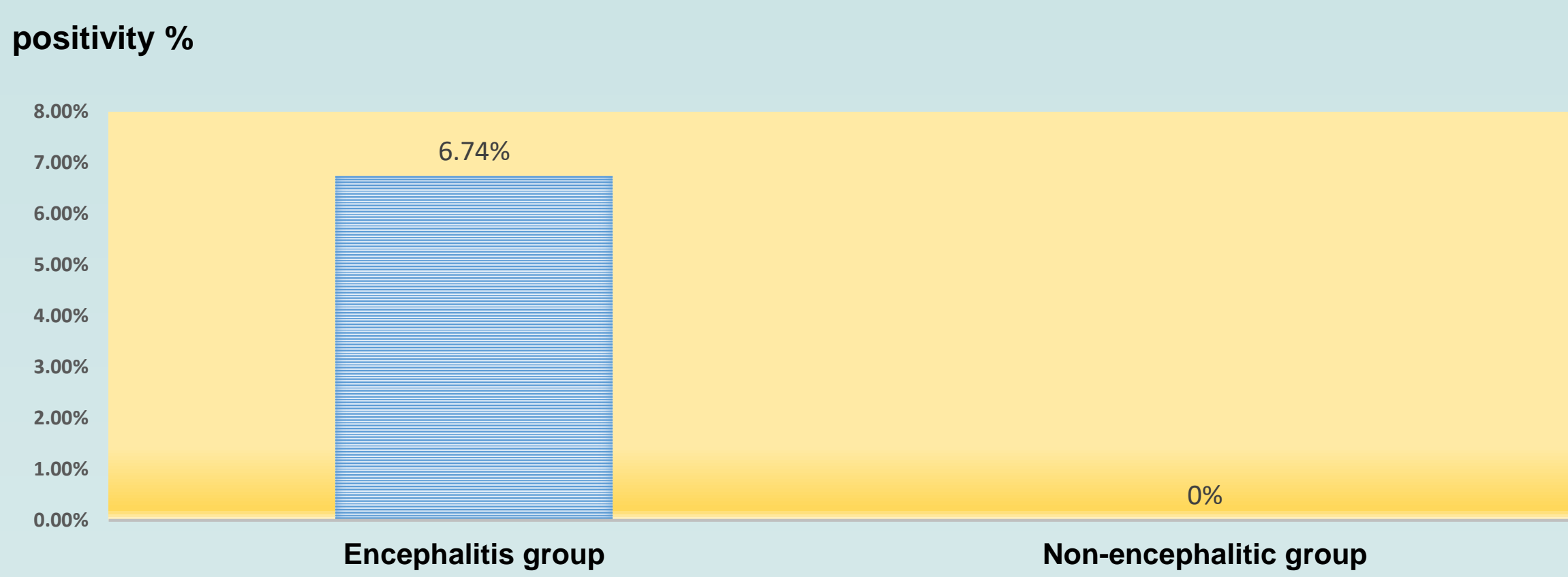


- ❖ Analysis:
  - ✓ Incidence of HSV and VZV compared between groups
  - ✓ Aim: Assess diagnostic yield and appropriateness of viral testing

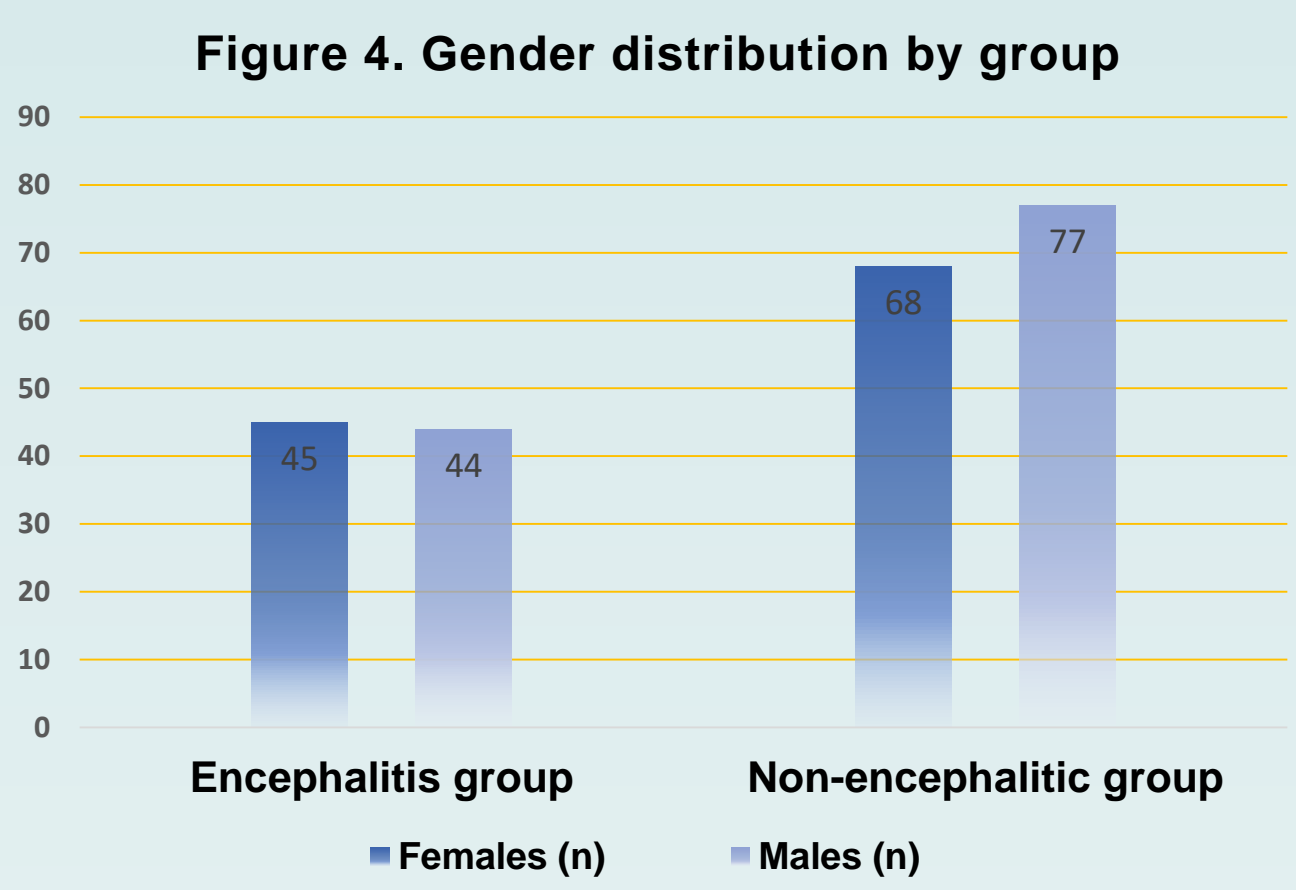
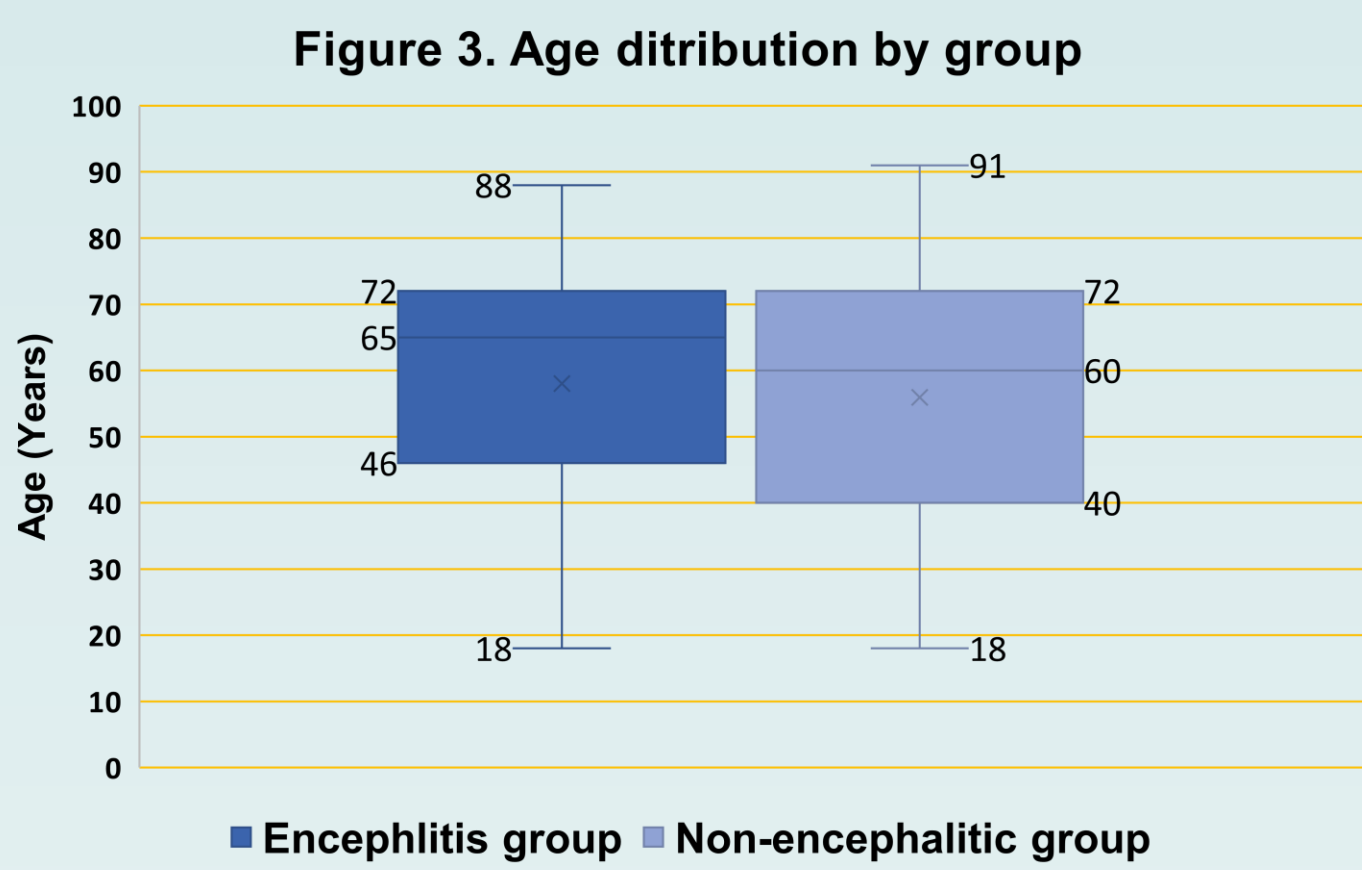
## Results

- ❖ Incidence of HSV / VZV Encephalitis group: 6/89 (6.74%) positive
  - ✓ HSV-1: 1 case
  - ✓ VZV: 5 cases
- ❖ Non-encephalitic group: 0/135 (0%)
- ❖ Statistical significance:  $p = 0.0026$

Figure 2. HSV / VZV positivity by group



- ❖ Age and gender distribution



## Key Findings

- ❖ HSV/VZV detected only in encephalitis group
- ❖ Significant association ( $p = 0.0026$ )
- ❖ VZV more frequent than HSV-1
- ❖ Patients mainly middle-aged to elderly

## Conclusion

- ❖ CSF viral testing shows higher diagnostic yield in patients with clinical encephalitis.
- ❖ Non-indicated testing in non-encephalitic cases may underestimate the true incidence of viral encephalitis.
- ❖ Findings support the need to optimize CSF testing practices.
- ❖ Improved diagnostic stewardship with clear testing criteria is essential to enhance accuracy and resource use.

## References

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## Conflict of Interest & Funding

- ❖ Conflict of Interest: The authors declare no conflicts of interest.
- ❖ Funding: This study received no external funding and was conducted using existing laboratory data.