

# Frailty Index as a new marker of drug-resistance in adult people with focal epilepsy: a pilot study

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## AIMS

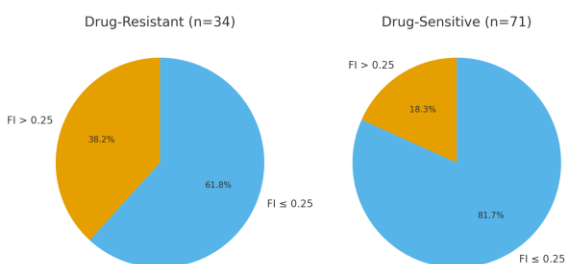
The Frailty Index (FI) is an increasingly recognised multimorbidity construct designed to capture differences in susceptibility to adverse outcomes in various neurological diseases<sup>1</sup>. The FI has recently been developed as a novel, comprehensive metric for individuals with epilepsy<sup>1</sup>. Our research question was to assess whether the FI may serve as a new marker for drug resistance in adults with focal epilepsy.

## MATERIALS AND METHODS

Between 1 January 2024 and 31 December 2024, we consecutively enrolled adult individuals with focal epilepsy at our Outpatient Epilepsy Clinic in Catanzaro, Italy. Inclusion criteria were: 1) age  $\geq 18$  years at the time of outpatient consultation; and 2) a diagnosis of focal epilepsy, according to the latest International League Against Epilepsy (ILAE) classification criteria<sup>2</sup>. Drug resistance<sup>2</sup> and 'structural' epilepsy were defined according to ILAE recommendations. All enrolled patients underwent standard EEG and brain MRI as part of their diagnostic work-up. The 33-item Frailty Index (FI) was calculated for the study cohort. We defined as 'frail individuals' people with  $FI > 0.25$ . Statistical analyses were performed using R software.

## RESULTS

Our cohort included 105 individuals with focal epilepsy, of whom 34 (32.4%) were drug-resistant at last follow-up. The mean age at epilepsy onset was lower in the drug-resistant group ( $12.2 \pm 11$  years) compared to drug-sensitive individuals ( $18.3 \pm 16.7$  years), although this difference did not reach statistical significance [Mann–Whitney test,  $P = 0.122$ ]. The mean FI was significantly higher in the drug-resistant group than in the drug-sensitive group [Mann–Whitney test,  $P < 0.05$ ]. Specifically, 13 out of 34 (38.2%) drug-resistant individuals had an  $FI > 0.25$ , compared to 13 out of 71 (18.3%) drug-sensitive individuals [Chi-squared test,  $P < 0.05$ ]. FI remained significantly higher in the drug-resistant group when controlling for structural MRI findings as a covariate [ANCOVA,  $P < 0.05$ ].



## CONCLUSION

Our findings suggest that the FI may serve as a novel marker for drug resistance in adults with focal epilepsy. The FI appears to be a useful clinical tool for identifying people with focal epilepsy at increased risk of drug resistance.

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2. Kwan, P., Arzimanoglou, A., Berg, A. T., Brodie, M. J., Allen Hauser, W., Mathem, G., Moshé, S. L., Perucca, E., Wiebe, S., & French, J. Definition of drug resistant epilepsy: consensus proposal by the ad hoc Task Force of the ILAE Commission on Therapeutic Strategies. *Epilepsia*, 2010, 51(6), 1069–1077.



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