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Letter to the Editor

Cohorts with Sufficient Statistical Power are Required to Compare GBS Cases from the Periods Before, During, and After the Pandemic

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Letter to the Editor

We read with interest the article by Pazarci *et al*. regarding the clinical and electrophysiological characteristics of 70 patients with Guillain-Barré syndrome (GBS) recruited before (n=31), during (n=24), and after (n=15) the pandemic [1]. The nature of preceding events differed significantly across these periods; furthermore, compared to the groups from the periods during and after the pandemic, the pre-pandemic group exhibited greater severity in terms of admission Hughes scores, MRC sum scores, and mEGRIS scores [1]. While the study offers valuable insights, it warrants further discussion.

A primary point of note is the retrospective study design. Retrospective designs entail various disadvantages that must be considered when interpreting the data. Key issues include incomplete datasets, susceptibility to recall bias, and the inability to establish definitive cause-and-effect relationships [2]. Since data are typically collected for clinical or administrative purposes rather than for research, critical variables may be missing, inconsistent, or documented by different personnel with varying degrees of accuracy [2]. Additionally, temporal ambiguity may arise, as the precise sequence of events is often difficult to determine. Furthermore, comparison groups are frequently selected via convenience sampling, meaning they are not representative of the general population [2]. As retrospective studies are almost invariably observational, they are highly susceptible to hidden confounders and provide a weaker basis for establishing causality [2].

A second point is that the sample size was small [1]. Small samples have low statistical power; consequently, such studies are often unable to detect an actual effect or association, thereby increasing the likelihood of false-negative results [3]. Moreover, a single extreme observation or anomaly can disproportionately skew the data, leading to highly unstable regression coefficients, odds ratios, or group means [3]. Small samples also preclude the inclusion of multiple covariates, making the results susceptible to significant bias due to confounding factors [3]. Effect estimates derived from small samples are inherently imprecise; their confidence intervals are consequently too wide to provide a reliable or meaningful measure of effect size [3]. Furthermore, a small group is rarely representative of the entire target population, making it difficult to generalize the findings to a larger demographic group [3].

A third point is that the triggers for GBS were not included in the analysis [1]. The most common triggers for GBS include gastrointestinal, pulmonary, or bladder infections involving *Campylobacter jejuni*, the most frequent pathogen associated with GBS. Less common triggers include *Haemophilus influenzae*, *Mycoplasma pneumoniae*, CMV, HIV, HBV, EBV, HCV, HEV, HSV, VZV, dengue, Zika, rubella, West Nile, and Japanese encephalitis viruses, *Plasmodium falciparum*, leptospirosis, *Orientia tsutsugamushi*, *Mycobacterium tuberculosis*, and *Treponema pallidum* [4]. Rare triggers include vaccinations, trauma, systemic lupus erythematosus, or prior surgeries [4]. Since different triggers can be responsible for various clinical and electrophysiological presentations, it is crucial to include the trigger in the analysis.

A fourth point is that 18 of the included patients met only level 3 of the Brighton criteria. This indicates that diagnostic certainty was based solely on medical history, symptoms, and clinical findings. Since these patients did not undergo cerebrospinal fluid analysis, nerve conduction studies, or contrast-enhanced MRI of the nerve roots, their diagnosis remains uncertain. Consequently, these patients should be excluded from the analysis. To enable a reliable comparison of the three groups, only patients meeting diagnostic level 1 should be included in the study.

Finally, according to the methods section, there was an overlap between the pre-pandemic period and the pandemic period (March 2020).

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