Flaccid paraplegia of the lower limbs in paediatric patients has many causes

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Dear Editor,

The article by Parvaiz et al is impressive, but some points should be discussed. First is the retrospective design of the study (*1*). Retrospective designs have the disadvantage of possibly missing some data, sometimes the accuracy of the data cannot be easily verified, the desired missing or new data can no longer be generated, and references to certain studies are often not comprehensible. A retrospective design does not allow for follow-up studies. We should know how many patients had to be excluded due to missing data, how many were included despite missing data and to what extent this influenced the results.

Second, the aetiology of Guillain-Barre syndrome was not specified in 41% of the patients (*1*). Although Guillain-Barre syndrome is most commonly caused by infections with *Campylobacter jejunii*, *Mycoplasma pneumoniae* and cytomegalovirus (*2*), it should be specified how many of the patients admitted for Guillain-Barre syndrome were positive for SARS-CoV-2 on admission. This is important because the samples were collected in 2022 (during the pandemic) and SARS-CoV-2 infections have been repeatedly reported to be complicated by Guillain-Barre syndrome (*3*). There is also evidence that Guillain-Barre syndrome can be triggered by SARS-CoV-2 vaccination (*4*). Since the vaccine was already available in 2022, we should know how many of the people suffering from Guillain-Barre syndrome had been vaccinated shortly before the onset of symptoms.

Third, many causes of paraplegia have not been considered. Paraplegia of the lower limbs may be due not only to Guillain-Barre syndrome, meningoencephalitis, septic arthritis, hypokalaemia, cerebrovascular events, diphtheria, or poliomyelitis (*1*), but also to falx meningioma, mantle-edge syndrome, bilateral corticospinal tract lesion other than ischemia or infection (e.g. multiple sclerosis, myelin oligodendrocyte glycoprotein antibody-associated disease or neuromyelitis optical spectrum disorder), bilateral plexitis, polyneuropathy, transmission disease, and other causes such as myositis, rhabdomyolysis, previous vaccinations (other than SARS-CoV-2), hereditary disease, syringomyelia, electrolyte imbalance or acidosis or alkalosis. We should know whether these alternative causes were considered and excluded as causes of paraplegia in the 88 patients included.

Fourth, it is incomprehensible why the conclusion was made that flaccid paralysis is preventable by vaccination and that its infectious aetiology is low (*1*). We agree that paraplegia due to infections for which vaccines are available can be prevented with specific vaccinations, but this is not the case for paraplegia due to non-infectious causes. We disagree with the statement in the conclusions that infectious causes of paraplegia are low. Since infections are a common cause of Guillain-Barre syndrome and almost three-quarters of the reported patients had an infectious cause, this conclusion is not consistent with the results.

Fifth, we do not understand why septic arthritis causes flaccid paraplegia. Was the paraplegia due to the sepsis, the arthritis or both?

Sixth, the outcome of the 88 patients was inadequately described. We should know how many recovered completely and how many recovered incompletely.

Response by the authors

Thank you for your comments. Our retrospective study aimed at surveillance of the reporting of acute flaccid paraplegia cases to the WHO team, which is being done with much care. The concept of missing data in retrospective design is least applicable to our study and the causes or aetiology of Guillain-Barre syndrome could be elucidated in our setting due to limited resources. The SARS-CoV2 vaccination age group in Pakistan was above 16 years of age, therefore, we could not explore that association, the retrospective study designs are least favoured for establishing causation.

The other causes of paraplegia were documented as diagnosed, but only cases presenting with acute flaccid paraplegia were included. We included cases of pseudoparalysis (due to myositis, septic arthritis) because they are also reported to WHO as part of continuous surveillance. The follow-up records of these patients were not available.

When we are able to establish the aetiology or cause of every case of acute flaccid paraplegia, we would be able to confidently comment on the percentage of infectious aetiologies in our setting.

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