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Neurological adverse events after vaccination against Sars-Cov-2 in the municipality of Parnaíba, Piauí

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Introduction
At the end of 2019, a new disease that would come to be known as Covid-19 emerged in Wuhan, Hubei province, China, caused by a virus called novel coronavirus or SARS-CoV-2. The infection has spread worldwide, causing many deaths, however, at the end of 2020, the first vaccines against this new virus appeared, approved by regulatory bodies as being effective and safe. However, since the beginning of immunization, there has been much speculation within the general population both about the supposed low efficacy and the correlation with serious post-vaccination adverse events (APVE), including deaths. Furthermore, it is highlighted in the literature that neurological manifestations are one of the main sources of AEFI. Objective: Therefore, the objective of this study is post-vaccination adverse events against Covid-19 in the municipality of Parnaíba, Piauí.

Objectives
1) Investigate the occurrence of post-vaccination adverse events of a neurological nature of vaccination against SARS-CoV-2 in the municipality of Parnaíba, Piauí.

Methods
This is a cross-sectional, observational, descriptive and epidemiological quantitative study. Data were collected from the Information Sistema de Informação de Eventos Adversos Pós-Vacinação (SI-EAPV) of Secretaria de Estado da Saúde do Piauí, in the period from January 2021 (date of the beginning of vaccination against Covid-19 in Brazil) to September 2021. The study population was concentrated in the municipality of Parnaíba, located in the state of Piauí, Brazil. According to the Instituto Brasileiro de Geografia e Estatística (IBGE), the estimated population for the municipality in question is 153,863 people. The dependent variable is the presence of neurological manifestation as an outcome: yes/no. The other variables analyzed were color/race, sex and the description of the vaccine used.

Results
The research results showed a total of 2,079 patients who had some AEFI, of which 846 (40.7%) had some neurological manifestation. From this last data, the other variables were evaluated, with the majority of cases concentrated in the female public (n= 661, 78.1%) and in brown color/race (n= 439, 51.89%), although the latter represents a percentage similar to the demographic condition of the region, with no statistically significant difference. According to the descriptions of the vaccines used, Covid-19-Covishield-Oxford/AstraZeneca (n= 521) was the immunizer that presented the most neurological AEFI, although it was also the most applied vaccine, not showing any significant correlation. with the symptoms. Regarding the neurological manifestations, headache is the most prominent effect, present in 740 (87.47%) of the patients. Other more frequently reported neurological symptoms were dizziness (n=83, 9.8%), somnolence (n=31, 3.6%) and tingling/numbness/paraesthesia (n=27, 3.2%). Some of the neurological cases presented that were associated with AEFI stand out, such as seizures (n=12, 1.4%), fainting/syncope (n=8, 0.9%), meningoencephalitis (n=2, 0.2%), stroke (n=2, 0.2%), Guillain Barré syndrome (n=2, 0.2%) and viral encephalitis (n=1, 0.1%). Although these cases have been correlated with AEFI, they represent a very low rate among all manifested cases, without an important statistical correlation.

Conclusion
It is concluded, therefore, that vaccination against Covid-19 is a safe action and presents mostly mild to moderate AEFI. The important role of the population to be vaccinated is reinforced so that the risk of infection and hospitalization for this disease is low.

Keywords: Vaccines, SARS-CoV-2, Drug-related side effects and adverse reactions, Nervous system diseases.