

Postictal immobility and generalized EEG suppression are associated with the severity of respiratory dysfunction.

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Objective –The mechanisms underlying SUDEP (sudden unexpected death in epilepsy) are not known, but a few parameters of potential importance have been recognized. SUDEP has been shown to occur mostly after a generalized tonic clonic seizure, and individuals are for the most part found in a prone position i.e. with the chest down and the back up. Respiratory dysfunction (an increase in blood CO₂), postictal immobility (loss of movement right after a seizure) and postictal generalized EEG suppression (PGES) could play a role. The authors of a [recent study](#) examined whether postictal immobility was associated with PGES and with SUDEP. To do this, they chose patients that had tonic-clonic seizures and measured a number of parameters.

Results - There were no correlations between postictal immobility and the duration of the seizures or the location in the brain where seizures were originating. However, there was a correlation between respiratory dysfunction, PGES and postictal immobility.

Interpretation – This study shows a link between PGES, respiratory dysfunction and postictal immobility and sheds light on the possible sequence of events that could lead to SUDEP. It could be that after a tonic-clonic seizure, an individual in the prone position experiences a positive feedback between respiratory dysfunction and postictal immobility. This would mean that the more a person is immobile, the more respiratory dysfunction would occur, which could continue until the person is unable to move the head, ultimately leading to death. This study is important because something that reverses or targets postictal immobility may help reverse SUDEP.

Short summary for scientists – Sudden unexpected death in epilepsy (SUDEP) is a phenomenon for which the mechanisms are not yet understood. The role of postictal generalized EEG suppression (PGES), postictal immobility and respiratory dysfunction has been suggested, but not confirmed. The authors of a [recent paper](#) investigated correlations between postictal immobility, PGES and respiratory dysfunction (measured by SpO₂ and end-tidal CO₂) and seizure parameters. Correlations of postictal immobility with PGES and respiratory dysfunction were found, but not with seizure characteristics. This study suggests the possible sequence of events that may lead to SUDEP with possible ways of intervening to reduce its incidence.

Link to the paper – Free access - no