Sudden Death Syndromes (Sdss) Likely Have A Primary or Secondary Cardiac, Pulmonary, or Cerebral Cause

Abstract:
Keywords: sudden death, epilepsy, hippocampus, drugs, cardiotoxicity, Takotsubo

LETTER TO EDITOR

With interest we read the article by Kon, F. C. et al., 2020 about histological abnormalities of the hippocampus in 48 sudden unexplained death in childhood (SUDC) patients, 18 sudden unexplained death in epilepsy (SUDEP) patients, and 130 sudden infant death syndrome (SIDS) patients (Kon, F. C. et al., 2020). The authors found hippocampal abnormalities in 16/36 SUDC cases with a history of epilepsy, in 5/15 SUDC cases with a history of seizures, and in 15/18 SUDEP cases (Kon, F. C. et al., 2020).

We have the following comments and concerns.

When discussing sudden death of whatever kind (SIDS, SUDC, SUDEP, sudden unexplained death in schizophrenia (SUDS), or sudden unexplained death in Parkinson’s disease (SUDPAR)) we should consider the most frequent causes of death in the general population, including asystole, ventricular arrhythmias, acute heart failure, pulmonary embolism, stroke or cerebral bleeding, infection/sepsis, or dementia (WHO. 2020). These most common causes of death, of which some cannot be easily detected on post-mortem investigations, should be made responsible for sudden death syndromes (SDSs) as well. Furthermore, pathophysiologic mechanisms other than hippocampal alterations, including drugs, drug interaction, Takotsubo syndrome, neurogenic pulmonary edema, or electrolyte disturbances, should be considered.

A further argument against hippocampal abnormalities as the cause of SDSs is that some patients, particularly elderly patients, develop hippocampal abnormalities without ever experiencing a SDS. Notably, not only patients with epilepsy or hippocampal abnormalities but also those without may die suddenly.

A major shortcoming of the study is the retrospective design. Many data available for one patient are not available for the other. Furthermore, it has not been mentioned how fixation of the specimens was carried and with which latency after decease preparation of the specimens was done.

A number of essential data are missing. Missing is the family history to assess in how many cases a hereditary disease should be considered. Missing is the treatment with anti-seizure drugs (ASDs) among those with epilepsy. Since
some ASDs are potentially cardiotoxic (e.g. phenytoin, lamotrigine) (Su, C. M. et al., 2009; & Dream, A. et al., 2018), we should know which particular ASDs in mono- or polytherapy the included patients were taking. We also should know the entire non-ASD medication patients were regularly taking since often the interaction between certain drugs can be cardiotoxic (Hydzik, P. et al., 2011).

Overall, this study provides interesting results but the conclusions drawn should be carefully revised and the shortcomings outlined above addressed. Before attributing SDSs to histological hippocampal abnormalities, a number of clinical data and other pathomechanisms need to be included in the discussion about individual SDS causes.

REFERENCES