Acute symptomatic seizures and hippocampal sclerosis: the major contributor for post-stroke epilepsy?

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OBJECTIVE

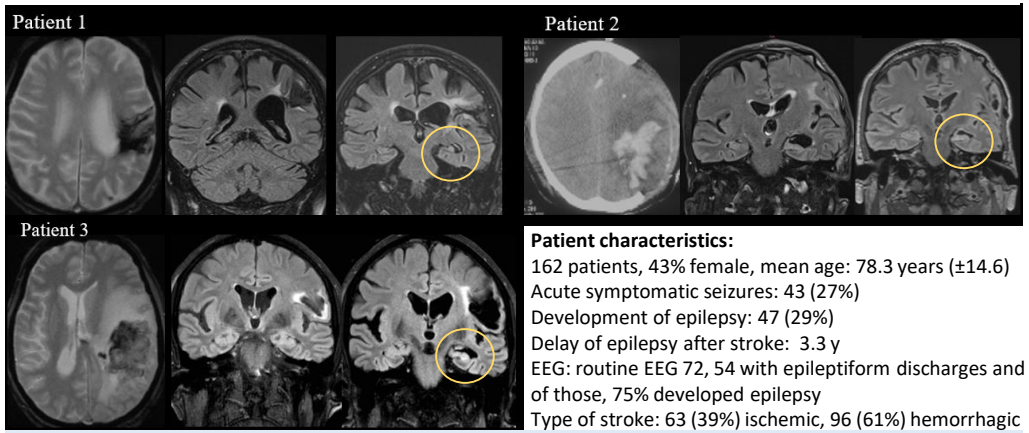
To determine if acute symptomatic seizures (ASS) contributes to the development of post-stroke epilepsy and if there are secondary structural changes

METHODS

- Retrospective observational study of 162 patients hospitalized (2007 – 2018) with acute stroke in the Stroke Center of the Geneva University Hospital.
- Inclusion criteria: documented normal hippocampal complex at onset and a control MRI at ≥ 2 years interval. Exclusion criteria: pre-existing mesial temporal atrophy or lesions involving the hippocampus or brain damage; new lesions, e.g. new stroke or tumor, on follow-up MRI.

RESULTS

162 patients fulfilled our inclusion criteria. ASS during the first week ($p<0.0001$) and epileptiform abnormalities in electroencephalography (EEG; $p=0.02$) were more frequently associated with the development of epilepsy. Hemorrhagic stroke was strongly associated to both ASS and future focal epilepsy ($p=0.00097$). Three patients (1.8%) developed hippocampal sclerosis ipsilateral to the cerebrovascular event between 2 and 5 years, all with ASS and hemorrhagic stroke.



Patient characteristics:
162 patients, 43% female, mean age: 78.3 years (±14.6)
Acute symptomatic seizures: 43 (27%)
Development of epilepsy: 47 (29%)
Delay of epilepsy after stroke: 3.3 y
EEG: routine EEG 72, 54 with epileptiform discharges and of those, 75% developed epilepsy
Type of stroke: 63 (39%) ischemic, 96 (61%) hemorrhagic

CONCLUSION

- Acute hemorrhagic stroke combined with acute seizures leads to epilepsy & in some cases to secondary HS
- ASS are not benign and self-limiting but indicate the onset of epilepsy in the majority of patients (93%)
- Cerebral hemorrhage is associated with a 2.5 higher risk of developing epilepsy
- Epileptogenic discharges in the EEG are a risk factor regarding the development of epilepsy. Prospective studies, including EEG on admission, will help to determine the risk of epilepsy and HS in patients admitted with acute stroke.

Funding: PS and MS were supported by SNF 180365.

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