COVID-19 & seizure/epilepsy

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Background: COVID-19

Novel coronavirus

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

WHO

- SARS-CoV-2 = COVID-19 (coronavirus disease 2019)
- Pandemic

Background: COVID-19

Can infect at all age ranges and genders

Typical symptoms

- Respiratory symptoms

Atypical symptoms

- GI symptoms, anosmia, confusion
- Mimic: Dengue hemorrhagic fever, unexplained cardiac arrest
- Kawasaki disease in children, toxic shock syndrome → multisystem inflammatory syndrome in children

Mortality: varies

Previous coronaviruses & Neurology

Previous coronaviruses & Neurology

Severe acute respiratory syndrome (SARS) in 2003

Middle East respiratory syndrome coronavirus (MERS-CoV)

- ? neurotropic
- Inflammation and demyelination
- Encephalitis, encephalomyelitis
- Seizure 23% and 8.6% respectively

Novel coronavirus (COVID-19) & neurology

Novel coronavirus (COVID-19) & neurology

Headache (13%)

Dizziness (17%)

Alteration of consciousness (8%)

Stroke (3%)

Incoordination (0.5%)

Seizure (0.5%)

Novel coronavirus (COVID-19) & seizure/epilepsy

COVID-19 and acute symptomatic seizures

COVID-19 and acute symptomatic seizures

Incidence and risk for acute symptomatic seizures in OVID-19

Multicenter survey 42 hospital, 11 neurologists

Retrospective 304 patients, 108 severe COVID-19 condition

No epilepsy

Only 2 patients developed seizure-like symptoms from stress, hypocalcemia

Lu L et al. Epilepsia 2020

COVID-19 and acute symptomatic seizures

Case report, Vollono C., Italy, in Seizure 2020

A primary presentation: a focal status epilepticus

COVIDs and seizures

Direct viral neuroinvasion (viral encephalitis)

Trigger immune system (autoimmune encephalitis)

Hypoxia, organ failure, metabolic derangements

Therapeutic intervention: drug

Limitations

Non-convulsive status epilepticus (NCSE)

Electroencephalogram, EEG

Salzburg Consensus Criteria for Non-Convulsive Status Epilepticus

Under-recognition

COVID-19 effects epilepsy

COVID-19 effects epilepsy

As precipitating factors: fever, stress, hypoxemia

Medication withdrawal

SARS outbreak/pandemic in 2003

- From Taiwan, 227 patients
- 22% medication inaccessible
- 12% uncontrolled seizures
- 2 case developed status epilepticus

COVID-19 effects epilepsy

Antiepileptic medications

- Anti-viral therapies
  - Drug-to-drug interaction with AEDs
  - Cardiac conduction abnormalities, prolonged QT-interval, PR interval, arrhythmia, and hypotension: avoid AEDs with same side effects
- In severe COVID-19 with organ failure: dosage adjustment

Epilepsy effects COVID-19

Epilepsy effects COVID-19

No strong evidence that epilepsy alone is susceptible host for COVID-19

Seizure treatment approach during COVID-19

Seizure treatment approach during COVID-19

Clinical, subclinical seizure, status epilepticus

- As general principal of seizure/epilepsy treatment
- Avoid side effect, drug interaction, dosage adjustment in organ failure
- Short-term AEDS during acute and transitional phase in first acute symptomatic seizure for increase seizure threshold

Proper management plan for epilepsy during COVID-19

Proper management plan for epilepsy during COVID-19

Telemedicine, video consultations

Medicine delivery

Conclusion

COVID-19

Low prevalence of acute asymptomatic seizures

Subclinical or non-convulsive): may be under-recognized

Follow general principal of seizure/epilepsy treatment

เอกสารอ้างอิง

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Thank you