Biomarkers of Epileptogenesis

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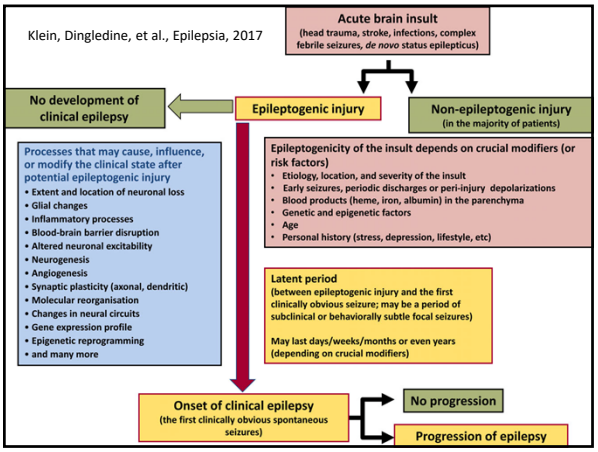
Disclosures: Speaker for UCB, Lundbeck
Research support from LivaNova



Disclosures

- None

Overview

- Raymond Dingledine:
  - Experimental Models of Epileptogenesis
  - Professor of Pharmacology, Emory University (former Chair for 25 yrs)
  - Ph.D. at Stanford University
- Melanie Carless:
  - Epigenetic Markers of Epileptogenesis
  - Assoc Scientist, Texas Biomed
  - Ph.D. in Molecular Genetics at Griffith University
  - Postdoctoral work at Moffitt Cancer Center in Tampa
- Cian McCafferty:
  - Neuroimaging in Generalized Seizure Models: Implications for Epileptogenesis and Behavior
  - Postdoct Assoc, Yale University
  - Ph.D. in Electrophysiology at Cardiff University

Epileptogenesis

- Definition
  - The gradual process leading a "normal" brain to develop epilepsy
    - Typically acquired
    - Epilepsy emerges after a latency period following a "first" hit
  - Latency period
    - Identify risk factors or biomarkers for epilepsy
    - Intervention
      - "Antiepileptogenic therapies"
- Clinical scenarios
  - Complex febrile seizures and status epilepticus
  - Posttraumatic, –stroke or infectious epilepsy
    - Perilesional or remotely connected structures
- Challenges
  - Low incidence of developing epilepsy
  - Location
  - Duration of latency period
  - Mitigating factors
    - Genetics
    - Medications

Epileptogenesis

- Experimental models
  - Chemoconvulsant-induced status epilepticus
  - Single, repetitive or prolonged seizures induced by kindling, hypoxia, hyperthermia or chemoconvulsants
  - Seizures induced by trauma or genetic alterations
- Epigenetic effects
  - DNA-methylation or microRNA
- Generalized epilepsy
  - Early pharmacologic interventions modify disease
  - Structural/functional brain developmental changes