The Effect of Ictal-Interictal Continuum Burden on Discharge Disability based on a Large-Scale Cohort

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INTRODUCTION

• The ictal-interictal continuum (IIC) is characterized by periodic and/or rhythmic EEG patterns that occur in critically ill patients.
• IIC are potentially harmful and can cause neuronal injury. But there are no clear guidelines on how to treat IIC.

METHODS

• A retrospective study of 1302 patients in MGH between 2011 and 2017. The informed consent was not required for this study as approved by the IRB.
• Inclusion criteria: >18 years, underwent continuous EEG monitoring for at least 18 hours.
• IIC burden is measured as three parameters:
  - The ratio of Sz/LPD/GPD/LRDA within the first 24h
  - The cumulative discharge frequency of Sz/LPD/GPD within the first 24h
  - The cumulative discharge frequency x spatial extent of Sz/LPD/GPD within the first 24h
• Drug is measured as weight-normalized cumulative dose within the first 24h, categorized into sedating anti-epileptic drug (AED), non-sedating AED, and analgesics.
• Covariates include basic demographics, history of important comorbidities, diagnosis of neurological and primary diseases.
• Outcome: modified Rankin Scale.

RESULTS

• How much harm do IIC burden, discharge frequency and produce to the quality of life after hospital discharge?

RESEARCH QUESTION

• We quantified how the expected mRS at discharge change with respect to various measures of IIC burden.
• Higher discharged frequency of Sz/LPD/GPD within the first 24h leads to worse disability as measured by mRS.
• Higher ratio of Sz/LPD/GPD/LRDA within the first 24h leads to worse disability as measured by mRS.

CONCLUSION

• We quantified how the expected mRS at discharge change with respect to various measures of IIC burden.
• Higher discharged frequency of Sz/LPD/GPD within the first 24h leads to worse disability as measured by mRS.
• Higher ratio of Sz/LPD/GPD/LRDA within the first 24h leads to worse disability as measured by mRS.

WHAT IS MRS?

- No symptoms at all
- No significant disability despite symptoms able to carry out all previous activities
- Slight disability: unable to carry out all previous activities, but able to look after own affairs without assistance
- Moderate disability: requiring some help, but able to walk without assistance
- Moderately severe disability: unable to walk and attend to bodily needs without assistance
- Severe disability: bedridden, requirement of constant nursing care and attention

https://www.mdcalc.com/modified-rankin-scale-neurologic-disability

ACKNOWLEDGMENTS

MBW has received funding from NIH-NINDS 1R01NS107291

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