[Predicting Seizures and Epilepsy] Milestone #2

1. “The association between childhood seizures and later childhood emotional and behavioral problems: findings from a nationally representative birth cohort”

This paper assessed the association of epilepsy, single unprovoked seizures, and febrile seizures with the later development of emotional/behavioral problems. 17,416 children in the 1958 British birth cohort were followed up until age 16 years. The associations of interests are: social disadvantage at birth and FRI with epilepsy, single unprovoked seizures, and febrile seizures at 7 years and emotional/behavioral disorders in later childhood; childhood seizures by age 7 years with emotional/behavioral disorders in later childhood, after accounting for social disadvantage and FRI.

The authors created categorical variables from 0 to 4 to access the effect of social disadvantage and FRI. In terms of statistical analyses, **logistic and modified Poisson regression models** were used to determine the associations of interests. **Person chi-square test** was used to compare the boys and girls who participated at each stage of the study; **multivariable logistic regression** was used to determine the association of social disadvantage at birth and fetal risk indicators with subsequent childhood seizures, epilepsy, febrile convulsions and single childhood seizures mutually adjusting for social disadvantage when fetal unprovoked indicators are the explanatory variables and vice versa. Similar strategy was used to examine the association of social disadvantage indicators and FRI with childhood emotional/behavioral problems at ages 7, 11, and 16 years, as well as the association of seizure disorders by 7 years and childhood emotional/behavior disorders at 7, 11 and 16 years after adjusting for potential confounders. **Likelihood ratio test** was used to test departure from linearity for continuous variables being treated as categorical exposures. Results were reported as odds ratios and incident risk ratios, along with 95% CIs. Significance was assessed using **Wald tests**.

The paper found that higher scores on FRI and social disadvantage were associated with emotional/behavioral problems at 7, 11, and 16 years, but not with seizure disorders at age 7 years. Epilepsy was associated with emotional/behavioral problems at 7, 11, and 16 years, whereas single unprovoked seizures were associated with emotional/behavioral problems at 16 years, after adjustment for FRI and social disadvantage. Febrile convulsions were not associated with increased risk for emotional/behavioral problems. Emotional/behavioral problems in children are related to an earlier diagnosis of epilepsy and single unprovoked seizures after accounting for social disadvantage and FRI. These findings suggest that the association of epilepsy with emotional/behavioral problems remains significant even after accounting for indicators of social disadvantage and fetal life, thus, social disadvantage and a history of fetal vulnerability should not be a barrier to accessing care in children with mental health problems.