PERC Epilepsy Surgery Database Project that has already established one of the largest pediatric epilepsy surgery cohorts.

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4 Preoperative International Classification of Cognitive Disorder in Epilepsy (IC-CoDE) Phenotype is Associated with Postoperative Memory Decline Following Temporal Lobectomy

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Objective: The International Classification of Cognitive Disorder in Epilepsy (IC-CoDE) is a new consensus-based taxonomy that classifies patients into one of four cognitive phenotypes (i.e., cognitively intact, single-domain impairment, bi-domain impairment, generalized impairment). The IC-CoDE has been effectively applied to patients with temporal lobe epilepsy (TLE), but little is known about the relationship between pre-operative cognitive phenotype and post-operative cognitive outcome following epilepsy surgery. The purpose of this study was to examine whether the IC-CoDE classifications are related to memory decline following surgery for TLE.
Participants and Methods: 347 patients (ages 16-66; 57% female) with pharmacoresistant TLE completed comprehensive pre- and post-surgical neuropsychological assessments. Patients were classified into IC-CoDE phenotypes based on pre-surgical pattern of cognitive impairment using a threshold of ≥ 1.5 standard deviations (SD) below the normative mean. Change scores were calculated from delay trial scores of the following memory tests: Rey Auditory Verbal Learning Test (RAVLT), and Logical Memory (LM) and Verbal Paired Associates (VPA) subtests from the Wechsler Memory Scale - Third Edition (WMS-III). Cutoffs were applied using epilepsy-specific reliable change indices and patients were classified within the 'decline' group if they experienced significant decline on any of the three memory measures.
Results: The distribution of IC-CoDE phenotypes in our sample were as follows: 57% intact, 29% single-domain, 10% bi-domain, and 5% generalized impairment. 108 patients (31%) demonstrated post-surgical memory decline. Patients who underwent dominant temporal lobectomy were more likely to show post-surgical memory decline compared to non-dominant temporal lobectomy. However, there was no significant difference in phenotype distribution between patients who underwent left versus right-sided resections; thus, analyses were conducted on the entire sample to increase power. Chi-square analyses revealed unique patterns of post-surgical memory decline across phenotypes, $X^2 = 8.79$, $p = .032$. There was a significantly higher proportion of patients with memory decline in the single-domain phenotype (39%) and this was followed by the bi-domain phenotype (33%) and the intact phenotype (29%). In contrast, patients with generalized impairment were unlikely to show memory decline (.06%). Within the single domain impaired phenotype, there were no differences between the specific domains impaired and memory decline. Logistic regression model was also significant; after controlling for surgery side, the IC-CoDE phenotypes significantly predicted the likelihood of a patient experiencing post-surgical memory decline; $X^2 = 8.18$, $p = .043$.
Conclusions: In addition to the IC-CoDE providing a useful cognitive classification scheme in epilepsy, the IC-CoDE phenotypes appear helpful in identifying those at risk for post-operative memory decline. Previous literature has suggested that those with better pre-surgical cognition are generally at highest risk for cognitive decline. Our results generally follow this trend, but interestingly, patients with single domain impairment were at the highest risk of memory decline, even above those in the cognitively intact group. Future studies are important to confirm this pattern in other samples and examine additional contributing factors and underlying mechanisms that may

influence risk of memory decline across these cognitive phenotypes.

Categories: Epilepsy/Seizures
Keyword 1: epilepsy / seizure disorders
Keyword 2: memory disorders
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5 The impact of recreational cannabis use on neuropsychological function in epilepsy

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Objective: Cannabis is classified as a class B drug in the UK with penalties for possession of up to 5 years in prison, an unlimited fine or both. Nevertheless it is widely available and is the most commonly used drug in the UK with approximately 2.6 million (7.6%) of adults reporting that they sometimes or regularly use it. It is not uncommon for people who present in our epilepsy clinic to report regular use of cannabis; some use it recreationally whilst others report 'self-medicating' based on the belief that it has a beneficial impact on their seizures. The aim of this study was to establish the prevalence of cannabis use in people with epilepsy referred for a neuropsychological assessment and to examine the impact of cannabis use on cognitive function in this group.
Participants and Methods: All patients who attend for a neuropsychological assessment are routinely asked about illegal drug use in their clinical interview. This information is also captured in the medical and neuropsychiatric assessments they undergo when assessed by the multidisciplinary team. The electronic medical records of 800 consecutive patients who had undergone a neuropsychological assessment between 2019 and 2022 were searched for references to cannabis use. The neuropsychological profiles of patients reporting cannabis use were compared to those seen in the larger series across multiple cognitive domains.
Results: Seventy (8.75%) of the patients in the series reported past or present cannabis use.

Cannabis users were more likely to be male (p<0.01) and were younger (p<0.01) than those who did not report use. Reading IQ was significantly lower in the cannabis group (p<0.001). Patients who were regularly using cannabis at the time of the neuropsychological assessment did not differ from the rest of the cohort on tests of processing speed, working memory, naming or verbal fluency. There were no differences between the groups in their performance on an embedded measure of performance validity. However the patients who were regularly using cannabis at the time of their neuropsychological assessments scored significantly lower on tests of verbal learning (p<0.05) and reported significantly greater subjective memory problems in everyday life (p=0.02) than the non-cannabis group. The group using cannabis also scored significantly more highly on the depression (p<0.01) and anxiety scales (p=0.02) on the Hospital Anxiety and Depression Scale.
Conclusions: The prevalence and patterns of cannabis use in the epilepsy population mirror those seen in the wider population. The impact on regular cannabis use on neuropsychological function appears to be most evident on measures of new learning and subjective measures of memory disturbance. Cannabis use is significantly associated with lower levels of cognitive reserve and elevated levels of anxiety and low mood. Whilst caution must be employed with respect to any direct attribution in these complex clinical presentations, these findings may be helpful in the interpretation of neuropsychological test scores and the planning of interventions, particularly with respect to subjective memory complaints in this group.

Categories: Epilepsy/Seizures
Keyword 1: memory complaints
Keyword 2: cannabis
Keyword 3: epilepsy / seizure disorders
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Paper Session 07: Cancer in pediatric populations

2:15 - 3:45pm
Thursday, 2nd February, 2023
Pacific Ballroom E