28

Mental health and antipsychotic prescription receipt among youth: A nation-wide healthcare insurance claims study

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OBJECTIVES/GOALS: In 2010, an estimated 65% of antipsychotic prescriptions were given to youth for off-label indications. It is unclear whether subsequent calls for reduced pediatric prescribing led to a decrease in off-label use. This study examined the diagnostic characteristics of the current pediatric population using antipsychotics in the United States. METHODS/STUDY POPULATION: Data from the Clinformatics Data Mart, a database containing longitudinal patient information between 2010-2019 from commercial healthcare insurance claims in the United States was used in this study. We conducted a case-control study, in which antipsychotic initiators were matched 1:1 to non-initiators on age, sex, and insurance enrollment. There were 26,375 included antipsychotic initiators with matched non-initiator controls between the ages of 6-17. Conditional logistic regression was used to examine the odds of being an antipsychotic user among those with past-year psychiatric diagnoses that have been previously found to be associated with antipsychotic use. RESULTS/ANTICIPATED RESULTS: Disorders with psychotic features were associated with the greatest differences in odds of antipsychotic prescription receipt. Specifically, children with bipolar or manic disorders had 145-fold greater odds of antipsychotic receipt than did those without bipolar or manic disorders (OR = 145.45, 95% CI = [95.64, 221.22]), whereas those with schizophrenia had 106-fold greater odds (OR = 105.89, CI = [67.40, 166.37]). However, these disorders occurred in only 12% and 8%, respectively, of the antipsychotic recipients. The most common disorders among those with antipsychotic receipt were depressive disorders and ADHD, which occurred in 46% and 43% of the recipients, respectively. Additionally, conduct disorder was present in 20% of recipients. DISCUSSION/SIGNIFICANCE: As expected, bipolar disorder and schizophrenia were strongly associated with initiation of pediatric antipsychotic treatment. Yet, most initiators did not have a diagnosis for either psychotic disorder or any other FDA-approved indications. This study highlights the critical need for further research on antipsychotic use among youth.

29

Molecular markers predict long-term recurrence following resection of clival and spinal chordomas: A multi-center study.

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OBJECTIVES/GOALS: We aimed to find the histology-specific markers that were predictive of post-operative long-term chordoma recurrence ($\leq$1 year) using trained multiple tree-based machine learning (ML) algorithms. METHODS/STUDY POPULATION: We reviewed the records of patients who had treatment for clival and spinal chordomas between January 2017 and June 2021 across the Mayo Clinic enterprise (Minnesota, Florida, and Arizona). Patients were excluded if they had no histopathology or recurrence as an outcome. Demographics, type of treatment, clinical and radiological follow-up duration, histopathology, and other relevant clinical factors were abstracted from each patient record. Decision tree and random forest classifiers were trained and tested to predict the long-term recurrence based on unseen data using an 80/20 split. The performance of the model was optimized using tenfold cross-validation. RESULTS/ANTICIPATED RESULTS: One hundred fifty-one patients were identified: 58 chordomas from the clivus, 48 chordomas of the mobile spine, and 45 sacrococcygeal. Subtotal Resection followed by radiation therapy, was the most common treatment modality, followed by Gross Total resection, then radiation therapy. The multivariate analysis defines the molecular predictors of recurrence following resection. S100 and pan-cytokeratin is more likely to increase the risk of post-operative recurrence (OR= 3.67; CI= [1.09,12.42], p=0.03). In the decision tree analysis, a clinical follow-up > 1897 days was found in 37 % of encounters and a 90% chance of being classified for recurrence (Accuracy= 77%). Factors predicting long-term recurrence are the patient's age, type of surgical treatment, location of the tumor, S100, pan-cytokeratin, and EMA. DISCUSSION/SIGNIFICANCE: Our molecular and clinicopathological variables combined with tree-based ML tools successfully demonstrate a high capacity to individually identify the patient's recurrence pattern with an accuracy of 77%. S100, pan-cytokeratin, and EMA were the histologic drivers of recurrence.

30

Monkeypox-Induced Secondary Traumatic Stress: An Exploratory Analysis of Young Sexual and Gender Minority Adults Living in Illinois

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OBJECTIVES/GOALS: The rapid spread of Monkeypox (MPV) across the US may trigger stress reactions that increase the risk of developing secondary trauma among those most at risk of exposure. The present study aimed to investigate the degree to which vicarious MPV exposure (i.e., knowing people who acquired MPV), was associated with symptoms of secondary traumatization. METHODS/STUDY POPULATION: An online survey was administered to 253 participants enrolled in Keeping it LITE, a prospective U.S. cohort study of ethnically diverse, sexually active, sexual, and gender minority persons aged 19–39 in September 2022. Multiple linear regression was used to examine the association between proximity to MPV and secondary traumatic stress (STS) symptoms. RESULTS/ANTICIPATED RESULTS: Study findings demonstrated that MPV morbidity was low (1%); however, 37% of participants reported knowing at least one person diagnosed with MPV. For most individuals, this person was a friend (28%). 16% of participants were found to have at least one indicator of MPV-related STS. Our multiple linear regression results demonstrated a positive association between an individual's indirect exposure to MPV via their interpersonal relationships and STS symptoms. DISCUSSION/SIGNIFICANCE: Findings suggest that the more adults' interpersonal relationships are saturated with people who have acquired MPV, the more likely they are to develop symptoms of secondary traumatization. These findings provide initial evidence that secondary exposure to MPV via one's social network may undermine adults' mental health.