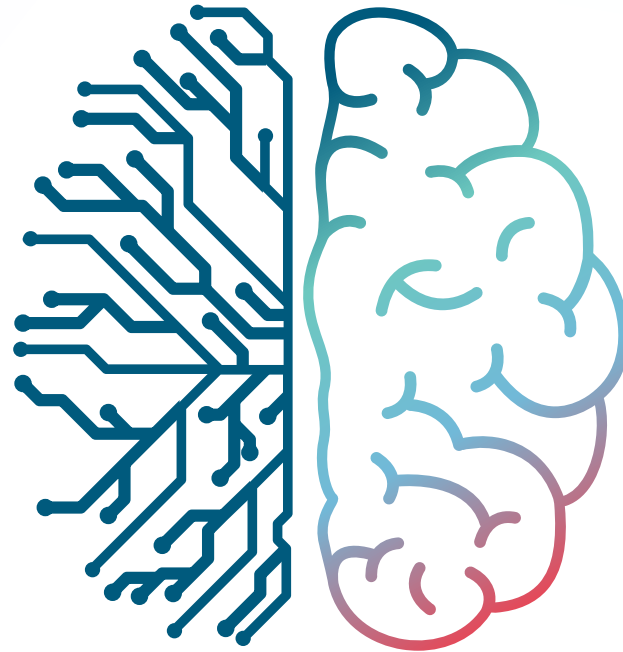


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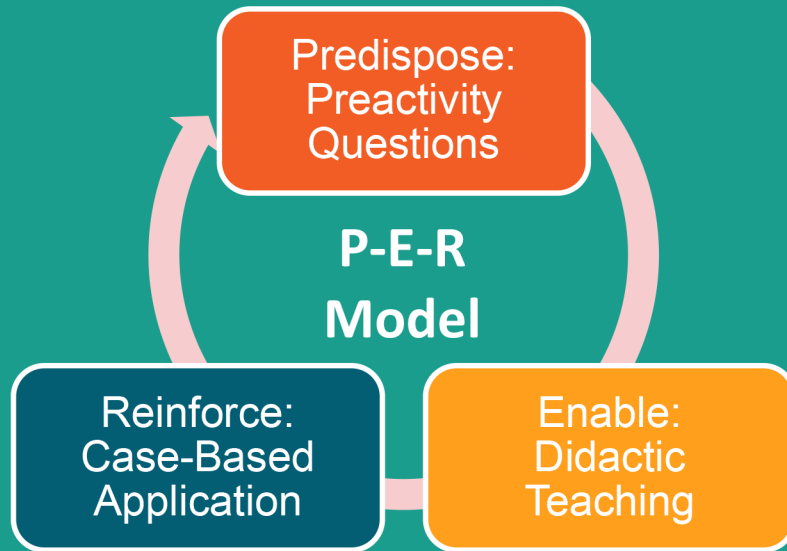
Psychopharmacology Update 2023



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Use of P-E-R Model Yielded Greatest Improvement in REMS Program FDA Blueprint Areas:

- (1) Principles of Pharmacologic Therapy
- (2) Managing Patients on Opioids
- (3) Pain Assessment



HCP, healthcare professional; NP, nurse practitioner; PA, physician associate.

References

1. cdc.gov/drugoverdose/deaths/index.html.
2. fda.gov/drugs/information-drug-class/opioid-analgesic-risk-evaluation-and-mitigation-strategy-rem.
3. fda.gov/media/144341/download.
4. Moore DE Jr et al. A conceptual framework for planning and assessing learning in continuing education activities designed for clinicians in one profession and/or clinical teams. Med Teach. 2018 Sep;40(9):904-913

From Awareness to Action: The Role of Opioid REMS Education in Safer Pain Management and Opioid Prescribing

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Introduction/Background

- In 2021, 75.4% of drug overdose deaths in the United States involved an opioid, underscoring the need for education in pain management and opioid safety¹
- The Opioid Analgesic REMS program offers education on proper treatment and monitoring of pain through multiple methods²

Methods

Study Design

- The longitudinal program consisted of 6 modules anchored by live webinars with corresponding recorded videos, content-related emails, podcasts, and downloadable slides
- Participants could engage in as many or as few of the webinars and corresponding recorded webcasts as desired
- For each topic, identical questions were asked prior to the educational content and immediately following the content
- The educational content was designed to cover the FDA Blueprint for Healthcare Providers Involved in the Treatment and Monitoring of Patients with Pain³
- Content was designed using P-E-R principles⁴

Data Collection

- Demographic data from participants in 6 live and 6 online recorded webcasts were included
- As each participant moved throughout the longitudinal curriculum, participation in the FDA Blueprint components was tracked
- For each educational topic, responses were matched by participant and aggregated for a pooled analysis



Methods (cont'd)

Primary Outcome

- Analyze the impact on participant knowledge and competence changes throughout a REMS-compliant longitudinal continuing education program

Statistical Analysis

- Descriptive statistics were used to describe demographics and FDA Blueprint completion
- Microsoft Excel was used to analyze the answers to the preactivity and postactivity questions

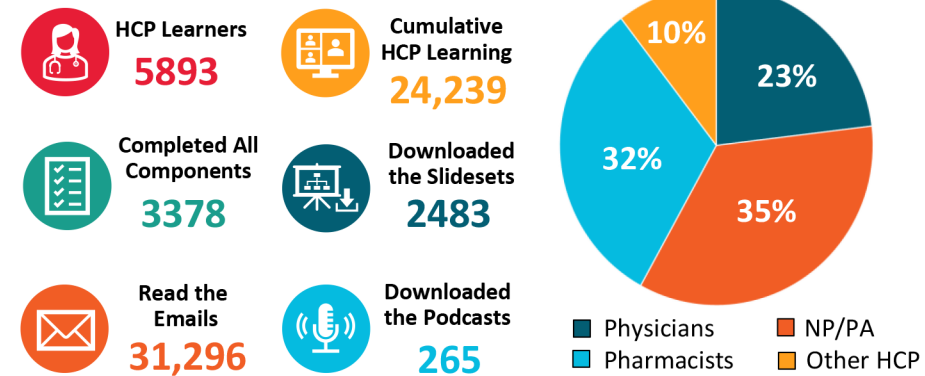
Results

- Questions in the “Managing Patients on Opioid Analgesics” module showed the most growth (average of 17.9%) between preactivity and postactivity testing
- The question about prescribing naloxone had the smallest growth rate (1.2%) and had only ~50% correctness in both preactivity and postactivity testing
- Questions in the “Designing Individualized and Effective Treatments” module showed the second-smallest growth rates (4.3% on average) but had high averages overall of correct answers (~80%)
- Case-based questions were among those with the highest absolute increases, ranging from 19.3% to 30.3% from preactivity to postactivity

Conclusions

- More robust education on naloxone prescribing needs to be included in future education given low growth rates and low averages
- High correct responses in some items for designing treatment plans allow for deeper discussion in these areas
- Case-based questions are useful for assessing multiple domains of information and can address >1 learning objective

Overall Program Metrics



Olivia Hill MS-III, Sarah Hughes MS-III, Aakanksha Singh MBBS DNB, Michael Ang-Rabanes MD, Raja Mogallapu MD

Introduction:

Research has shown that Glucagon-like peptides (GLP-1) agonists, which were originally developed as diabetes medications, have gained popularity due to their weight loss properties such as suppressing appetite and reducing the speed of gastric emptying. Additionally, these drugs have been found to mitigate substance use disorders due to their effects on the brain-gut axis. This makes them useful for treating coexisting comorbidities and reducing healthcare costs. In a case report, a 44-year-old male with morbid obesity and metabolic syndrome who had an inconsistent eating pattern and consumed significant amounts of alcohol (90 beers per month) was prescribed Dulaglutide. Within three months, he lost 25 pounds and reduced his alcohol use to 4-8 beers per month. This case report adds to the evidence supporting the positive effects of GLP-1 agonists on both weight loss and alcohol use reduction.

Case Study:

The patient was a 44-year-old male who came to the outpatient clinic seeking help for his weight gain and lifestyle management. During the visit, he weighed 275 pounds, had a body mass index of 41.8, and a waist circumference of 62 inches. He had a history of hypertension and was noted to be prediabetic, with a hemoglobin A1c of 5.8%. The patient's family had a history of obesity. He had undergone back surgery recently, which increased his weight. He reported consuming processed foods and doing less exercise. Additionally, he mentioned drinking approximately **90 beers per month** and was in precontemplation about his alcohol use. The patient's AUDIT score, a 10-question screening tool for AUD, was 19.

Treatment Course

Visit 1:

- The patient received counseling on nutrition and lifestyle changes, including daily exercise of 20-30 minutes and restricting his food intake after dinner and before breakfast each morning.
- Precontemplation stage about reducing alcohol use
- Preliminary Labs:
 - Insulin: 27.4 mIU/mL,
 - HDL: 43
 - Triglycerides: 294
 - VLDL: 48
- The patient was prescribed Dulaglutide 0.75 mg/0.5 mL

Visit 2 (7 weeks later):

- Weight loss: 10 pounds (265 pounds)
- He expressed that his drinking habits had changed, and he had **reduced his beer consumption to only 30 beers per month.**
- The patient reported feeling full after drinking and reduced urges and cravings to drink.
- Patient agreed to increase his Dulaglutide dose to 1.5 mg

Visit 3 (12 weeks from visit 1)

- Weight Loss: 25 pounds (250 pounds, BMI 37.3)
- Waist circumference: reduced from 62 to 47 inches
- Alcohol Use: **four to eight beers per month**, with a new AUDIT score of 6.
- Repeat labs:
 - Triglycerides: 213
 - HbA1c 5.4
 - Insulin: 13.7 mIU/mL
 - *No significant changes in HDL or VLDL*

Discussion

It's important to note that while disulfiram, acamprosate, and naltrexone are commonly used to treat Alcohol Use Disorder (AUD), they do have limitations. However, recent studies have found that GLP-1 agonists, which are typically used to treat diabetes, can be effective in reducing cravings for alcohol and food. This is because GLP-1 receptors are present in areas of the brain that are linked to food anticipation and satiety, such as the insula, hypothalamus, and orbitofrontal cortex. GLP-1 has been shown to reduce dopamine release, which in turn reduces the reward aspect of alcohol and food. Insulin plays a significant role in regulating blood sugar levels and controlling the metabolism of glucose and lipids. Insulin resistance in the brain can lead to an increase in alcohol intake and addiction. In our case, it was observed that after 12 weeks of treatment, there was a significant decrease in insulin levels, which may have contributed to the reduction in cravings for alcohol. Insulin resistance in the hypothalamus can affect the brain's reward circuitry, leading to an increased desire for alcohol and other substances of abuse. Therefore, the decrease in insulin levels may have played a role in reducing the cravings for alcohol.

Conclusion

This report presents a case where GLP-1 agonists helped a patient lose weight and reduce alcohol consumption by 93% in 12 weeks. GLP-1 agonists have widespread effects on the CNS and GI tract, reducing cravings for food and substances, including alcohol. This study is a significant step forward in developing new and improved pharmacological treatments for AUD. It is worth noting that further research is required to verify these results and establish GLP-1 agonists as a conventional treatment for AUD.

References:

Please refer to the supplemental handout for a list of references used in this presentation

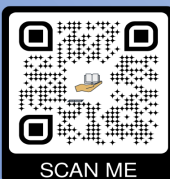
INTRODUCTION

- Neurodegenerative diseases like Parkinson's disease (PD) encompass both nonmotor symptoms as well as motor symptoms. A study by A.Maillet et al., explored the significance of serotonergic degeneration alongside the hypodopaminergic state in PD. Serotonin depletion causes prodromal non-motor symptoms such as loss of smell, constipation, urinary dysfunction, orthostatic hypotension, excessive daytime sleepiness, rapid eye movement sleep behavior disorder, apathy, anxiety, and depression. These symptoms may be specific to PD, and if they co-occur, there is a greater likelihood of a PD diagnosis. Additionally, corticolimbic dysfunction causes reduced activation in the ventral striatum and heightens activity in the dorsal striatum, which can lead to impulsive behaviors like pathological gambling in PD
- Aim of the study:** To highlight the early occurrence of various non-motor symptoms, such as anhedonia and impulsivity leading to behaviors like gambling and hypersexuality, in Parkinson's disease. These symptoms can present initial challenges in the diagnosis and treatment of PD

CASE PRESENTATION

- A 58-year-old married male patient, evaluated two years ago for his first depressive episode after suffering a significant business loss, presented with symptoms of anxiety, racing thoughts, insomnia, decreased libido and significant weight loss. His wife noted a change in his demeanor from charming and easygoing to withdrawn and less motivated, spending most of his time watching TV
- Over the past four years, he has experienced financial losses due to gambling. Additionally, he has reported symptoms such as constipation, handwriting difficulties, and trouble swallowing
- The patient reported a lack of pleasure in previously pleasurable activities and easy fatigability in his daily chores
- He was prescribed paroxetine, and olanzapine 10mg as a working diagnosis of bipolar disorder, by his previous care provider. Olanzapine helped with his sleep and appetite without any improvement in his mood

References



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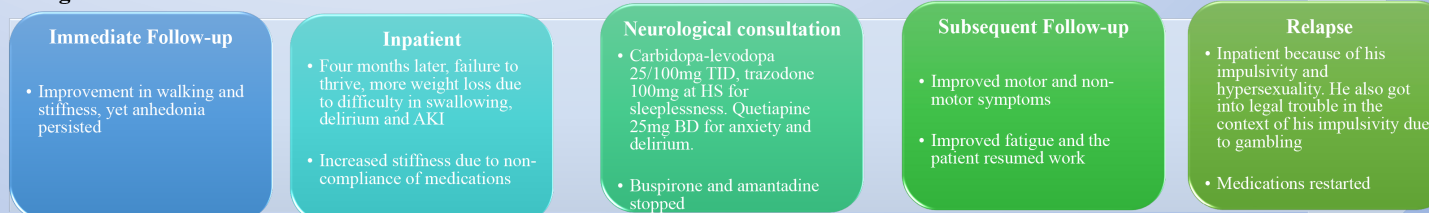
EVALUATION & WORKUP

- Positive for impulsivity but had no other symptoms of bipolar disorder
- No history of Parkinson's psychosis or dementia and it was ruled out. Negative family history
- Psychological Testing:** Mood disorder scale was negative for bipolar disorder
- Physical & Neurological Examinations:** Asymmetric bilateral rigidity in both hands, rigidity in his right leg, and reduced hand swing while walking. His muscle strength and other neurological examination was within normal limits
- Mental Status Examination:** Psychomotor retardation, flat affect, and poor insight about his health
- Treatment:** Amantadine 100mg TID for motor symptoms, buspirone 5mg TID for anxiety
- A gradual tapering of olanzapine from 10mg to 5mg to rule out drug-induced parkinsonism (extra-pyramidal symptoms) and probably diagnoses of early PD associated with anhedonia.
- Neurology Consultation:** Ruled out all other causes and confirmed diagnoses of Parkinson's disease unspecified

DISCUSSION

- Parkinson's Disease (PD) is the most prevalent neurodegenerative disease occurring typically in the 5th to 6th decade of life
- Non-motor symptoms precede motor symptoms by 4-6 years and are linked to depletion of dopamine and serotonin, affecting emotional processing.
- Common non-motor symptoms include gastrointestinal issues, apathy, anxiety, anhedonia, loss of smell, psychosis, and REM sleep disorders.
- Early-stage symptoms like compulsive gambling, binge eating, and hypersexuality are attributed to dysregulation in brain pathways responsible for learning, decision-making, and reward processing
- Mesolimbic and mesocortical pathways play crucial roles: mesolimbic for impulsive behavior and mesocortical for executive function
- Dopamine agonists (e.g., carbidopa-levodopa) commonly cause these symptoms, and reducing dosage often leads to improvement
- In this case study, isolated gambling and hypersexuality were features of impulsive-compulsive disorder in PD
- Carbidopa-levodopa effectively treated non-motor symptoms of hypersexuality and gambling, improved anhedonia, fatigue and PD motor symptoms

Fig 1: Course of illness



CONCLUSION

- Late diagnosis of ICD with anhedonia along with movement disorders is not uncommon, as seen in this case
- Early diagnosis and treatment of PD can improve the patient's prognosis and overall quality of life
- Impulsivity symptoms like gambling and hypersexuality could be prodromal indicators of non-motor symptoms in Parkinson's, not just side effects of dopamine agonists
- Pathological gambling and hypersexuality are commonly associated with males; females can present with compulsive shopping and binge eating

LIMITATIONS

- The impulsivity scale was not applied to measure the patient's impulsive score