Dual Diagnosis Cases

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Disclosures:

- Nothing to disclose.

Bio

- Graduated from Long Island University: Brooklyn/Cumberland Hospital PA Program
- PA since 1975
- Worked for the Federal Bureau of Prisons for 30 years.
  - Was the 1st PA hired by the Federal Prisons
- Volunteer EMT/Firefighter for 52 years

Objectives

- 1) To make you think:
- 2) Is there a medical diagnosis that is causing the behavioral problem
- 3) Is there a medication that may be causing the behavioral problem.

CSRU

Community Stabilization and Reintegration Unit

- A specialized unit that deals with intellectually disabled individuals with a coexisting psychiatric diagnosis.

Definition of Intellectually Disabled

- **Mild IQ score of 50 – 70**
- **Moderate IQ score of 40 – 50**
- Severe IQ score of 20 – 40
- Profound IQ score is less than 20

- **Dual diagnosis** is with a comorbidity of a Psychiatric Diagnosis.

- Ex: Mild ID with Bipolar
  Mild ID with psychosis
  Moderate ID with Depression

Case 1: ES

- 44 y/o male with a history of severe aggression. Hospitalized numerous times to include a state hospitalization. Admitting diagnosis was Mild ID, Bipolar 1 Disorder current manic without psychotic features, Impulse Control Disorder, Reflux Disease, Hypertension, Hypothyroidism, Insulin Dependent Diabetes, Lithium Toxicity and Essential Tremor.

Case 1: ES (Cont.)

- Medications include:
  - Insulin 70/30
  - Prilosec
  - clonidine
  - metformin
  - levothyroxine
  - Lisinopril
  - oxcarbazepine
  - Zalpelon
  - clonazepam
  - lithium

Question 1

- Is there a medical diagnosis that may cause behavioral problems?
  - Mild ID
  - Bipolar 1 Disorder current manic without psychosis
  - Impulse Control Disorder
  - Reflux Disease
  - Hypertension
  - Hypothyroidism
  - Insulin Dependent Diabetes
  - Lithium Toxicity
  - Essential Tremor

Case 1: ES (Cont.)

- In this case his uncontrolled diabetes caused him to become very violent.
- Whenever his blood sugar was over 250 he became violent.

Question 2:

- Are there medications that can cause behavioral problems?
  - Insulin 70/30
  - Prilosec
  - clonidine
  - metformin
  - levothyroxine
  - Lisinopril
  - oxcarbazepine
  - Zalpelon
  - clonazepam
  - Lithium

Case 1: ES (Cont.)

- In this case it was the clonidine that was causing him to become very irritable.

Question 3: What did I do?

- Changed his 70/30 insulin to Novolog and Lantus to better control his diabetes.
- Changed his clonidine to propranolol LA. This controlled his hypertension and his essential tremor.
  - Draw back: this could cause us missing the symptoms of hypoglycemia.
    - In this case it did not.
- We added Latuda and Perphenazine to control his behavioral problems. He was able to be discharged to a group home.

Case 2: DL

- DL is a 36 y/o female with a history of Bipolar 1 disorder, Impulse Control Disorder, Moderate ID, Aphasia, Tuberous Sclerosis, S/P Brain Surgery, seizure disorder, S/P renal transplant, congenital heart defect, hypertension, and extreme aggression.

Medications on admission:

- Trazodone
- Seroquel
- Vitamin D
- Lorazepam
- Keppra
- mycophenalate mofetil
- cyclosporine.

Question 1?

- Is there a medical diagnosis that could be causing the behavioral problem of severe aggression?
  - Bipolar 1 disorder, Impulse Control Disorder, Moderate ID, Aphasia, Tuberous Sclerosis, S/P Brain Surgery, seizure disorder, S/P renal transplant, congenital heart defect, hypertension, and extreme aggression

- Discussion:

Question 2?

- Is there a medication that can be causing her behavioral problems?
  - Trazodone
  - Seroquel
  - Vitamin D
  - Lorazepam
  - Keppra
  - mycophenalate mofetil
  - cyclosporine.

- Discussion:

Case 3: BH

- BH is a 36 y/o male admitted due to aggressive behaviors at home. Admitting diagnosis include:
  - Mood Disorder NOS
  - OCD
  - Autism
  - Mild ID

Medications on admission:

- Clonazepam 6mg PO Daily
- trazodone 150mg PO HS
- Ziprasidone 80mg PO BID
- Haldol 5mg PO BID

Case 3: BH (Cont.)

- Upon admission he had very slurred speech, unsteady gait, very aggressive and very demanding. He would try to bully his way into getting what he wanted.

Question ?

- What medication is causing his problem on admission?
  - Clonazepam 6mg PO Daily
  - trazodone 150mg PO HS
  - Ziprasidone 80mg PO BID
  - Haldol 5mg PO BID

- Discussion:

Case 4: JC

- 35y/o Female admitted to our unit due to behaviors of hitting her head, property destruction, eating everything in sight, including taking raw frozen chicken out of the freezer and eating it. Also biting her hands. She was hitting her head so hard she was putting holes in the walls. In addition she was non-communicative.

Case 4: JC (Cont.)

- Admitting diagnosis: Mild ID, Intermittent Explosive Disorder, Impulse Control Disorder, Autism and Hypothyroidism. She also had enuresis.

- What is the diagnosis concerning her appetite control?

- Discussion:

Case 4: JC

- How do you treat?
- Discussion:

Case 4: JC

- Why did she still have behaviors of aggression and banging her head?
- What workup would you do?
- Discussion:

Pharmacogenomics

What is it?

Pharmacogenomics

- The use of genomic markers as indicators of how an individual will respond to psychiatric medications.
- This technology helps to guide effective treatment which is tailored specifically to the patient.
- Helps to ensure patient safety.

genesight

Patient, Sample
DOB: 7/22/1984
Order Number: 9904
Report Date: 6/22/2016
Clinician: Sample Clinician
Reference: 1456CIP

Questions? Call 855.891.9415 or email

ANTIDEPRESSANTS

USE AS DIRECTED

desvenlafaxine (Pristiq®)
levomilnacipran (Fetzima®)
vilazodone (Viibryd®)

MODERATE GENE-DRUG INTERACTION

trazodone (Desyrel®)	1
venlafaxine (Effexor®)	1
selegiline (Emsam®)	2
fluoxetine (Prozac®)	1,4
citalopram (Celexa®)	3,4
escitalopram (Lexapro®)	3,4
sertraline (Zoloft®)	3,4

SIGNIFICANT GENE-DRUG INTERACTION

bupropion (Wellbutrin®)	1,6
mirtazapine (Remeron®)	1,6
amitriptyline (Elavil®)	3,8
clomipramine (Anafranil®)	1,6,8
desipramine (Norpramin®)	1,6,8
doxepin (Sinequan®)	1,6,8
duloxetine (Cymbalta®)	1,6,8
imipramine (Tofranil®)	1,6,8
nortriptyline (Pamelor®)	1,6,8
vortioxetine (Trintellix®)	1,6,8
fluvoxamine (Luvox®)	1,4,6,8
paroxetine (Paxil®)	1,4,6,8

CLINICAL CONSIDERATIONS

1: Serum level may be too high, lower doses may be required.
2: Serum level may be too low, higher doses may be required.
3: Difficult to predict dose adjustments due to conflicting variations in metabolism.
4: Genotype may impact drug mechanism of action and result in reduced efficacy.
6: Use of this drug may increase risk of side effects.
8: FDA label identifies a potential gene-drug interaction for this medication.

All psychotropic medications require clinical monitoring.
This report is not intended to imply that the drugs listed are approved for the same indications or that they are comparable in safety or efficacy. The brand name is shown for illustrative purposes only; other brand names may be available. The prescribing physician should review the prescribing information for the drug(s) being considered and make treatment decisions based on the patient's individual needs and the characteristics of the drug prescribed. Propranolol might be considered off-label when being used for neuropsychiatric disorders. Please consult the FDA drug label for specific guidelines regarding its use.

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ANXIOLYTICS AND HYPNOTICS

USE AS DIRECTED	MODERATE GENE-DRUG INTERACTION		SIGNIFICANT GENE-DRUG INTERACTION	
alprazolam (Xanax®)	**chlordiazepoxide** (Librium®)	1	**propranolol** (Inderal®)	1,6,8
buspirone (BuSpar®)	**clorazepate** (Tranxene®)	1		
clonazepam (Klonopin®)	**diazepam** (Valium®)	1		
eszopiclone (Lunesta®)	**lorazepam** (Ativan®)	1		
temazepam (Restoril®)	**oxazepam** (Serax®)	1		
zolpidem (Ambien®)				

CLINICAL CONSIDERATIONS

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MOOD STABILIZERS

USE AS DIRECTED	MODERATE GENE-DRUG INTERACTION		SIGNIFICANT GENE-DRUG INTERACTION	
lamotrigine (Lamictal®)	**valproic acid/divalproex** (Depakote®)	1	**oxcarbazepine** (Trileptal®)	6,8
			carbamazepine (Tegretol®)	6,8,9

NO PROVEN GENETIC MARKERS			
gabapentin (Neurontin®)	10	**topiramate** (Topamax®)	10
lithium (Eskalith®)	10		

CLINICAL CONSIDERATIONS

1: Serum level may be too high, lower doses may be required.
6: Use of this drug may increase risk of side effects.
8: FDA label identifies a potential gene-drug interaction for this medication.
9: Per FDA label, this medication is contraindicated for this genotype.
10: This medication does not have clinically proven genetic markers that allow it to be categorized.

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ANTIPSYCHOTICS

USE AS DIRECTED	MODERATE GENE-DRUG INTERACTION		SIGNIFICANT GENE-DRUG INTERACTION	
asenapine (Saphris®)	**fluphenazine** (Prolixin®)	1	**chlorpromazine** (Thorazine®)	1,6
lurasidone (Latuda®)	**olanzapine** (Zyprexa®)	1	**aripiprazole** (Abilify®)	1,6,8
paliperidone (Invega®)	**quetiapine** (Seroquel®)	1	**brexpiprazole** (Rexulti®)	1,6,8
thiothixene (Navane®)	**clozapine** (Clozaril®)	1,8	**iloperidone** (Fanapt®)	1,6,8
ziprasidone (Geodon®)	**haloperidol** (Haldol®)	1,8	**perphenazine** (Trilafon®)	1,6,8
			risperidone (Risperdal®)	1,6,8
			thioridazine (Mellaril®)	1,6,9

CLINICAL CONSIDERATIONS

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6: Use of this drug may increase risk of side effects.
8: FDA label identifies a potential gene-drug interaction for this medication.
9: Per FDA label, this medication is contraindicated for this genotype.

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PATIENT GENOTYPES AND PHENOTYPES

PHARMACODYNAMIC GENES (PD)

SLC6A4 — **Reduced Response**
S/S

This patient is homozygous for the short promoter polymorphism of the serotonin transporter gene. The short promoter allele is reported to decrease expression of the serotonin transporter compared to the homozygous long promoter allele. The patient may have a decreased likelihood of response to selective serotonin reuptake inhibitors due to the presence of the short form of the gene and may benefit from medications with an alternative mechanism of action.

HTR2A — **Increased Sensitivity**
G/G

This individual is homozygous variant for the G allele of the -1438G>A polymorphism for the Serotonin Receptor Type 2A. They carry two copies of the G allele. This genotype has been associated with an increased risk of adverse drug reactions with certain selective serotonin reuptake inhibitors.

HLA-B*1502 — **Higher Risk**
Present

This patient carries either the HLA-B*1502 allele or a closely related *15 allele. Presence of HLA-B*1502 or some of the closely related *15 alleles suggests higher risk of serious dermatologic reactions including toxic epidermal necrolysis (TEN) and Stevens-Johnson syndrome (SJS) when taking certain mood stabilizers.

HLA-A*3101 — **Higher Risk**
A/T

This patient is heterozygous for the A allele and the T allele of the rs1061235 A>T polymorphism indicating presence of the HLA-A*3101 allele or certain HLA-A*33 alleles. This genotype suggests a higher risk of serious hypersensitivity reactions, including Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), maculopapular eruptions, and Drug Reaction with Eosinophilia and Systemic Symptoms when taking certain mood stabilizers.

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GENE-DRUG INTERACTIONS

USE AS DIRECTED

	CYP1A2	CYP2B6	CYP2C19	CYP2C9	CYP3A4	CYP2D6	UGT1A4	UGT2B15
ANTIDEPRESSANTS								
desvenlafaxine (Pristiq®)			●		○			
levomilnacipran (Fetzima®)			●		○	●		
vilazodone (Viibryd®)			●		○	●		
ANXIOLYTICS AND HYPNOTICS								
alprazolam (Xanax®)					○			
buspirone (BuSpar®)					○	●		
clonazepam (Klonopin®)					○			
eszopiclone (Lunesta®)				●	○			
temazepam (Restoril®)		●		●	○			●
zolpidem (Ambien®)	○		●	●	○	●		
ANTIPSYCHOTICS								
asenapine (Saphris®)	○				○	●	○	
lurasidone (Latuda®)					○			
paliperidone (Invega®)					○	●		
thiothixene (Navane®)	○							
ziprasidone (Geodon®)	○				○			
MOOD STABILIZERS								
lamotrigine (Lamictal®)							○	

MODERATE GENE-DRUG INTERACTION

	CYP1A2	CYP2B6	CYP2C19	CYP2C9	CYP3A4	CYP2D6	UGT1A4	UGT2B15
ANTIDEPRESSANTS								
citalopram (Celexa®)			●		○	●		
escitalopram (Lexapro®)			●		○	●		
fluoxetine (Prozac®)			●	●	○	●		
selegiline (Emsam®)	○	●	●		○			
sertraline (Zoloft®)		●	●	●	○	●		
trazodone (Desyrel®)	○				○	●		
venlafaxine (Effexor®)			●	●	○	●		
ANXIOLYTICS AND HYPNOTICS								
chlordiazepoxide (Librium®)	○				○			●
clorazepate (Tranxene®)	○				○			●
diazepam (Valium®)	○	●	●	●	○			●
lorazepam (Ativan®)								●
oxazepam (Serax®)								●

● - Variation was found in patient genotype that may impact medication response. ○ - This gene is associated with medication response, but patient genotype is normal.

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THE END

QUESTIONS?