Pharmacology 0606
Case Study: Bipolar Disorder

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Student Learning Objectives

- Identify the major target symptoms of bipolar disorder
- Recommend appropriate pharmacotherapy for patients with acute mania
- Generate parameters for monitoring lithium therapy
- Identify the pharmacologic options for treating bipolar disorder

General Definition

Major mood disorder characterized by alternating episodes of elation and depression.

Aspects of Etiology and Pathophysiology

- Genetic predisposition
- Neurochemical Dysregulation
- Neuroendocrine Dysregulation
- Neuroanatomical and Functional Abnormalities

Clinical Manifestations: Major Symptoms of Depression

- Depressed mood
- Loss of interests and pleasure
- Irritability
- Sadness
- Increase or decrease in appetite
- Insomnia
- Psychomotor agitation or retardation

Clinical Manifestations: Major symptoms of Depression

(continued)

- Fatigue
- Feelings of worthlessness
- Excessive guilt
- Poor concentration
- Suicidal Ideation

Clinical Manifestations: Major Symptoms of Mania

- Elation
- Irritability
- Inflated self esteem or grandiosity
- Decreased need for sleep
- Flight of Ideas
- Excessive talking

Clinical Manifestations Major Symptoms of Mania (continued)

- Pressured speech
- Distractibility
- Increased physical activities
- Increased pleasurable activities
- Psychomotor agitation

Patient Presentation Case #54

- Chief Complaint
  "A woman of my importance cannot be detained any longer."

- HPI
  Theresa Hall is a 34 yo woman with a history of bipolar disorder.

HPI (continued)

She had been doing well as an outpatient since her third admission to a private psychiatric facility one year ago. She had been taking Lithobid 600 mg po BID with a 12 hr. post dose plasma lithium concentration of 0.7mEq/L. One month ago she was seen by her psychiatrist for feelings of depression, anhedonia and fatigue.

HPI (continued)

She was started on fluoxetine 20 mg po Q AM. Last night, she had trouble getting to sleep. She decided to skip her lecture at the university this morning and went to a nearby shopping mall instead. While she was there, she booked a world cruise at a travel agency and purchased over $5000 worth of chlothes at Saks and Marshall Fields.

HPI (continued)

When she was told at the cash register that her credit card had reached its limit, she became outraged and demanded to speak to the manager. “How dare you! I am the greatest writer that ever lived.” Because of her disruptive behavior, security officers were called and she was admitted for a psychiatric evaluation.

(continued)

PMH

The patient has had three previous psychiatric admissions for bipolar disorder.

FH

A sister has been hospitalized on one occasion for a “nervous breakdown”.

(continued)

SH

She teaches English literature at a local college and enjoys writing fiction. Heterosexual. She is happily married and has son with ADHD. Drinks alcohol socially. Smokes cigarettes, 1ppd.

(continued)

Meds:

Lo-Ovral 28 po QD

Allergies:

Penicillin (hives)

ROS:

Negative

(continued)

PE: Non-contributory

Mental Status Examination

Appearance,behavior and speech: The patient is dressed in a clashing, multi-colored blouse and skirt with gold lame shoes and a matching handbag.

Mental Status Examination (continued)

Makeup is overdone with heavy lipstick, eye shadow and rouge. Several pieces of costume jewelry hang from her neck and arms. She is unable to keep her seat and is demanding to be released in clear rapid pressured speech: "Where is my attorney? A woman of my importance cannot be detained any longer."

Mental Status Examination (continued)

Mood and affect: Labile with dysphoria alternating with grandiosity. Appropriate affect is noted.
Sensorium: Oriented to person,place, time.

Intelligence: She appears to have above average intelligence based upon vocabulary. She is able to serial sevens and higher math.
Thought processes: Tangential with flight of ideas (changes subjects of conversation frequently). She denies suicidal and homicidal ideation. She denies hearing voices or seeing visions.

Laboratory Findings

(Patient)	(Normal Ranges)
Na 137mEq/L	(135-145)
K 3.8mEq/L	(3.8-5.5)
Cl 95mEq/L	(96-103)
Carbon Dioxide 24mEq/L	(22-34)
BUN 12mg/dl	(8-20)
Glucose 97mg/dl	(70-110)

Laboratory Findings (continued)

(Patient)	(Normal Ranges)
Serum creatinine 0.8mg/dl	(0.6-0.9)
Hgb 14.6g/dL	(12-16)
Hematocrit 44.5%	(38-46)
Platelets 252,000 mm3	(140-340)

Laboratory Findings (continued)

(Patient)	(Normal Ranges)
WBC 15,000/mm3 with	(5,000-10,000)
PMNs(neutrophils) 65%	(total neutrophils:65-67%)
Bands(neutrophils) 2%	
Eosinophils 1%	(1-4%)
Lymphs 34%	(25-33%)
Monocytes 8%	(3-7%)

Laboratory Findings (continued)

(Patient)		(Normal Ranges)
Lithium level	0.6mEq/L	▮ Dosage dependant ▮ 0.4-0.6:Between episodes ▮ 0.6-0.9:During episodes ▮ >1.0:Risk of severe adverse to toxic effects

Laboratory Findings (continued)

(Patient)		(Normal Ranges)
T 3 resin uptake	25.5%	(25-35%)
T 4	5.6mcg/dL	(4.5-12.0)
TSH	4.4uIU/mL	(0.5-5)
FTI	2.5 U	(FT4 1.0-2.0 nanograms/dL)

Laboratory Findings (continued)

UA

- ▮ pale-colored
- ▮ clear
- ▮ Sp. Gr. I.010
- ▮ glucose,ketones,blood: negative

Pregnancy Test

- ▮ negative

Problem Identification

1. a. What target symptoms of mania are exhibited in this patient?

- Inflated self-esteem, irritability, insomnia, flight of ideas, grandiosity, hyperactivity, exaggerated style of dressing, apparent delusions but with lack of awareness, impaired judgment with lack of awareness.

(continued)

1.b. What is the most likely cause of this particular episode?

General Predisposing Factors To Consider

- Psychosocial stressors
- Certain antidepressant drugs
- Childbirth

(continued)

- 1.b. Assessment: Apparent negative history for recent childbirth or psycho-social stressor and was doing well until started on fluoxetine, an SSRI anti-depressant. SSRIs can be used in bipolar disorder, except fluoxetine which can induce mania and may be a probable cause.

(continued)

1.c. The patient has an elevated WBC count. Does she have an infection?

Clinical Assessment:

- ROS negative
- HPI and PE non-contributory
- Pharmacotherapy involves side-effects which can include leukocytosis

(continued)

1.c. Drug regimen for this patient includes

- Lithium
- Fluoxetine
- Lo-Ovral 28

Lithium is well-known to produce leukocytosis and is probable cause of elevated WBC and not infection or the other drugs.

Desired Outcome

2. What are the goals of treatment for this individual?

- Control and prevent relapse episodes of mania or depression.
- Achieve stable, positive daily psychosocial functioning and ADL.
- Implement drug regimen with least risk for side effects and toxicity.

Therapeutic Alternatives

3.a. What non-drug therapies can be used in this situation?

- ECT (Electroconvulsive Therapy)
- Psychotherapy
- Negative Ion Therapy (If Available)

(continued)

3.b. What therapeutic alternatives are available for the treatment of bipolar disorder?

Alternative treatments to explore include:

- TMS (Transcranial Magnetic Stimulation)
- Bright-Light Therapy
- Sleep Deprivation Regimens
- Electroacupuncture

Optimal Plan

Design a specific pharmacotherapeutic regimen for this patient, including duration of therapy.

- Increase lithium dosage gradually over 7 days to achieve optimal level up to 0.9mEq/L and symptom control. If necessary, adjust dosage to achieve level of 1.0-1.2mEq/L over next week.

Optimal Plan (continued)

- Discontinue fluoxetine.
  Antidepressants (ADs) may worsen bipolar illness and should be avoided
  if at all possible. Increased lithium dosage may help prevent depression.
- If an AD is needed, consider selection from SSRI (others not likely to precipitate mania as is fluoxetine) or MAOI groups.

Optimal Plan (continued)

- If needed, plan trial with AD, paroxetine (SSRI) starting with 20mg daily for shortest period pissible to control symptoms, then discontinue.
- Psychotherapy.
- Family counseling.
- Bright Light Therapy.

Optimal Plan (continued)

- Nutritional counseling.
- Smoking and ETOH cessation counseling.
- Recreational therapy counseling.
- Continuing follow-up with psychiatrist to optimize effective treatment strategies.
- Assess family's need for social services counseling.

Assessment Paremeters

How should the pharmacotherapy regimen be monitored for efficacy and adverse effects? By regularly assessing:

- Patient behavior, physical and emotional reports and complaints.
- Selectively ordered lab test values to include those for lithium levels,kidney, thyroid and liver function and lytes.

Clinical Course

Within the next two weeks, Ms. Hall improves substantially, and the most recent plasma lithium level is 1.1mEq/L. She is ready to be discharged from the unit.

Patient Counseling

How should she be counseled when she l leaves the hospital? Counseling should cover her treatment regimen, compliance issues and precautions and include answering all of her questions. Topics to stress include the following:

- Medication dosages, expected actions, side effects, daily scheduling,labs needed.

Patient Counseling (continued)

- Safety issues re: driving, operating machinery, working, child care.
- Information to report immediately and situations to be considered emergent.
- Rationale for planned pregnancies.
- Daily basic physical and emotional health maintenance measures.
- Medical follow-up issues.