Neurodegenerative Diseases Study Guide

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I. Bipolar Disorder

Abstract—**Disease in which the patient has two diferent mental states: mania and depressive. Patient fluctuates in between the two. Diagnosis is difficult and the cause is not known, but could be related to inherited genetic traits, physiological abnormalities in the brain, chemical imbalance with neurological transmitters abd initiated by environmental stressors.**

Keywords—*Mania, Depressive*

A. Causes

The direct cause of Bipolar Disorder is unknown, however, it can be related to inherited genetic traits, physiological differences in the brain, chemical imbalance with neurotransmitters and initiated by the environmental stressors.
Genetic causes:

- Familial: Half the people with bipolar disorder have a family member with it
- A person with one parent with it has a 15-25 percent chance of developing it
- A person with a fraternal twin with it has a 25 percent chance of developing, same risks as if both parents have it
- A person with an identical twin with bipolar disorder has eightfold chance

Neurochemcial Causes:
- Dysfunction with neurotransmitters and their respective chemicals
- Norepinephrine
- Serotonin
- May lie dormant and can be activated on its own or triggered by external factors

Environmental Factors:
- Life event extremities
- Altered health habits such as alcohol or drug abuse
- Underdiagnosis in the past could explain the trend of BD at earlier ages
- Substance abuse may not be a cause, but in can worsen the depressive state

Keywords—*Genetical/Familial, Neurochemical, Environmental*

B. Symptoms

Bipolar disorder is generally characterized by two episodes:

- Manic: Extreme Happiness/Giddiness
  - Hyperactive Mannerisms
- Depressive: Extreme Sadness (Depression)
  - Slower mannerisms

The patient will fluctuate between these two episodes in violent mood swings. They can be in one mood for the whole day than switch to the other one spontaneously. It is dependent on the situation and the individual rather than anything concrete or genetically related. *Keywords*—*Manic, Depressive*

C. Treatments

Treatment options include:
- Medications
  - Mood Stabilizer (Lithium)
  - Antispychotics (Olanzapine)
  - Antidepressants (Fluoxetine)
  - Antidepressant-antipsychotics
  - Anti-anxieties
- Psychotherapy: General term for treating mental health problems by talking with a psychiatrist
- Electroconvulsive Therapy (ECT): Electrical currents passed through the brain to intentially cause a seizure. This wil alter the brain chemistry and thereby help revert certain mental illness symptoms.

Keywords—*Mood Stabilizers, Antipsychotics, Andtidepressants, Antidepressants-antipsychotics, anti-anxieties, psychotherapy, Electroconvulsive Therapy (ECT)*

D. Special Characteristics

Chracterized by drastic mood swings from periods of extreme highs to extreme lows. This complicates treatment options. The nature of the disease makes diagnosis difficult:
- Similar symptoms to other conditions
- Difficulty with dealing with patients

Keywords—*Mood Swings*

E. Relation to Other Diseases

- Autism and Asperger
  - Similar symptoms resulting in misdiagnosis
- Depression and Multiple Personality Disorder
  - Symptoms can coincide or be related
- Effect of prescription and non prescription drugs an the brain
  - Can cause or enhance similar symptoms
- Left Neglect
  - Both neurological, but very little similarity

F. Pathology

Has genetic linkage. Regions of interest include mutations on the chromosomes:

- 4p16
- 12q23-q24
- 16p13
- 21q22
- Xq24-q26

Keywords—Chromosomal Mutation

G. Pathophysiology

There is imbalance in neurotransmitters in the brain that lead to mood alterations. Furthermore, the prefrontal cortex (responsible for problem solving and decision making) in adults tends to be smaller and function less.

- Area matures during adolescence, which would explain appearance of disorder around a person's teen years

Keywords—Mood Disorder, prefrontal cortex, neurotransmitters

II. AUTISM AND ASPERGER'S

Abstract—**Range of neurodevelopmental disorders called Autism Spectrum Disorders (ASD). Asperger's is on the lower end of the spectrum while Autism can range from milder to severe. These diseases can also be characterized under Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS). Autism is characterized by social, behavioral and communicational impairment. Asperger's also implies social and behavioral impairments but communication is fine.**

A. Symptoms

In general, Autism is characterized by social, behavioral and communicational impediments. Asperger's is characterized by social and behavioral impediments but NOT speech impairment.

- Autism: Social, Behavioral, Speech
- Asperger's: Similar to Autism but without communication. Also has Obsessiveness.

Autism Syndrome	Asperger's Syndrome
1) Communication difficulties	1) Impaired nonverbal skills
2) Avoid eye contact during conversation	2) Trouble maintaining relationships
3) Desire to be alone	3) May have a lack of empathy
4) Trouble with feelings	4) May be physically awkward
5) Tendency to echo words or phrases	5) Above average memory
6) Speech delay	6) Struggle with abstract concepts
7) Witdrawal from socializing	7) Intelligence normal to above average
	8) Motor skill delays
	9) Want to interact with society but doesn't know how

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