



Treatments for Schizophrenia

Psychology 311
Abnormal Psychology

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Psyc 311 – Abnormal Psychology

Early treatments

- Trephining
 - Open a hole in the skull
 - Let out the evil spirit
 - Some people even survived, had multiple holes with different levels of healing
 - Not much success

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Greeks

- Hippocrates
- First real medical model
 - Herbs
 - Vegetarianism
 - Sexual abstinence
- Did not work well but was a start toward a non-spiritual approach

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Romans

- Similar approach to the Greeks
- Techniques became more refined

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Dark and Middle Ages

- Demons return
 - Exorcism, prayers
 - Torture
 - Dunking
- Islamic approaches
 - Similar to the Greek/Roman models
- Late middle ages, medical model returns
- Approaches had no or minimal success

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Larobit

- Was looking for a drug to calm patients before neurosurgery.
 - Found Chlorpromazine worked very well.
- Hypothesized it might be used on other patients
- Delay and Deniker found that high dosages of Chlorpromazine calmed patients with schizophrenia or manic-depressive symptoms
- Drug treatments begin

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Chlorpromazine and other Phenothiazines

- Part of the drug group – Typical Antipsychotics
- Other Typical Antipsychotics
 - Butyrophenones (Haloperidol)
 - Thioxanthenes (chlorprothixene)
- Have clear effects on schizophrenia
- Block
 - Delusions
 - Hallucinations
 - Disordered thinking

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Atypical Antipsychotics

- Are another group of drugs
- Are better for negative symptoms and cognitive problems
- Also have fewer side effects
- Includes
 - Clozapine
 - Risperidone
 - Olanzapine

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Atypical Antipsychotics

- Bind to D3 and D4 receptors
 - Are in the limbic system and cortex
 - Few in the BG
 - Reason for few extrapyramidal side effects

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Which Receptors?

- At least five types of Dopamine receptors
- D1 – D5
- D1 and D5 (D1a) Increase CAMP
 - Are in the cortex, hippocampus, caudate nucleus
- D2 Group (D2, D3, D4) decrease CAMP
 - Are in the caudate, putamen, nucleus accumbens, amygdala, hippocampus, parts of the cortex.
 - Are also in the caudate and putamen.

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Four Major Systems for Dopamine

- Tuberoinfundibular
- Nigrostriatal
- Mesolimbic
- Mesocortical

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Nigrostriatal

- Contributes to Parkinson's Disorder
- May be involved with short-term and long-term antipsychotic side effects.
- Short-Term
 - Hand tremor
 - Muscle rigidity
- Long Term
 - Tardive Dyskinesia

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Mesolimbic

- Several structures
- Is involved with emotion and memory.
- Symptoms of thought and perception disturbances are characteristic of schizophrenia and psychomotor epilepsy
- Carlsson
 - Hypothesizes the positive symptoms result from overactivity of this system

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Mesocortical

- Originates in ventral tegmental area
- Projects to the cortex (especially prefrontal cortex)
- Prefrontal cortex is involved in
 - Motivation
 - Planning
 - Attention
 - Social Behavior
- Hypothesized to be involved with negative symptoms of schizophrenia

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Weinberger

- Contents two dopamine systems are impacted by schizophrenia
- Increased activity of mesolimbic pathway through D2 group (especially D4) are associated with Positive symptoms.
- Decreased activity of mesocortical connections in prefrontal cortex is associated with negative symptoms.

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How?

- Mesocortical pathway to prefrontal cortex inhibits the mesolimbic pathway
- Primary effect of schizophrenia is a reduction of inhibition
- Leads to disinhibition in mesolimbic pathway
- Get symptoms

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Drugs

- Many types
- Given on the basis of symptoms and potency needed
- Can be Typical or Atypical depending on the symptoms.

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Some Drug Names

- Highest to lowest potency
 - Chlorpromazine
 - Clozapine
 - Molindone
 - Moperone
 - Haloperidol
 - Pimozide
 - Spiperone
- Many others can be inserted in the list.

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Drug Side Effects

- Include
 - Autonomic problems (dry mouth)
 - Skin-eye pigmentation
 - Breast development
 - Tardive dyskinesia: facial tics and gestures
 - Others – e.g., feel weird
- Side effects cause people to stop their medications.

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Behavioral and Cognitive Behavioral

- Are often used in conjunction with drug treatments
- Behavioral often used with certain types of schizophrenia in institutional settings
 - Catatonic Schizophrenia
 - Use reinforcement for movement
 - Behaviors increase
- Cognitive-Behavioral
 - Works with the thought patterns

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Effectiveness

- Behavioral models work well when used alone or in conjunction with drugs
 - Depends on the type of disorder when used alone
- Cognitive works well when used with drugs to help person deal with thought disorders
 - Also works when abuse or other problems occur as well.

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Other treatments

- ECT
- Psychoanalysis
- Nutritional

- All ineffective in controlled evaluations

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Issues and Problems in Treatment

- How to decrease side effects of the drugs
 - Keep person on drugs
 - Reduce tolerance
- Drug costs – expensive
- Identification of neurotransmitters and receptors involved with schizophrenia

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Social issues

- Development of community and social support mechanisms to help schizophrenics
 - Problem – Society does not want to support – high taxes
- Illicit drugs often cause schizophrenic symptoms to occur
 - Methamphetamines
 - Hallucinogens

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Conclusion

- Treatments work for most people
- Societal costs are very high
- Need more research to solve the disorder