Treatments for Schizophrenia

Psychology 311
Abnormal Psychology

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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

Greens

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

Romans

- Similar approach to the Greeks
- Techniques became more refined

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

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
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

Atypical Antipsychotics

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

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

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.

Four Major Systems for Dopamine

• Tuberoinfundibular
• Nigrostriatal
• Mesolimbic
• Mesocortical

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
Mesolimbic

- Several structures
- 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

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

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.

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

Drugs

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

Some Drug Names

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

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

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.

Other treatments

- ECT
- Psychoanalysis
- Nutritional
- All ineffective in controlled evaluations

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

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