



# **ADHD treatments in adults**

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# Adult with ADHD problem

- **Attention**
- **Controlling impulses and staying organized**
- **Work**
- **Relationships**
- **Self Esteem**

# Negative Consequences of ADHD

- **Reduced educational performance**
- **Social rejection**
- **Poorer occupational performance**
- **Higher probability of unemployment**
- **Interpersonal conflict**
- **More likely to be injured**
- **Traffic accidents**
- **Obesity**
- **Incarceration**
- **Conduct Disorder**
- **Substance Use Disorders**



# Adult ADHD: Scales and Testing

- **Role for Neuropsychological Testing**
  - Continuous Performance Test (CPT)
- **World Health Organization (WHO) Adult ADHD Self-Report Scale (ASRS)**
- **Brown Attention-Deficit Disorder Scale (BADDS)**



**World Health  
Organization**

# Treatments (multimodal treatment)

- **Medication**
- **Behavior strategies**
- **Life skills training**

# Drugs treatment

**1. Stimulants**

**2. Atomoxetine**

**3. Antidepressants**

**4. Clonidine**

**5. Modafinil**

**6. S.GA**

➤ **Risperidone**

➤ **Aripiprazole**

# Treating Adult ADHD: Pharmacotherapy

- **Stimulant medications are front-line management**
  - National Comorbidity Survey Replication (NCS-R)
- **FDA approved medications for Adult ADHD**
  - Extended release mixed amphetamine salts (Adderall XR)
  - Lisdexamfetamine dimesylate (Vyvanse)
  - Atomoxetine (Strattera)



- **Bupropion (Wellbutrin)**



# Stimulants

- **Lisdexamfetamine (Vyas) cap 30 mg, 50 mg, 70 mg. 10-12 h (tekaje)**
- **Methylphenidate ER sandoz tab 18 mg, 36 mg, 54 mg. 10-12 h**
- **Ritaline 10 mg 3-5 h**



# Conditions → Avoid stimulants

- **Bipolar disorder**
- **Anxiety**
- **Heart beat that's faster than normal or Whose rhythm is off**
- **High blood pressure**
- **Psychosis**
- **Severe anorexia**
- **Substance abuse**
- **Tourette syndrome**
- **Glaucoma**

# Stimulants Side effects

- Anorexia
- Anxiety or panic
- Dry mouth
- Headache
- Jitteriness
- Moodiness
- Slight increase in BP and PR
- Trouble sleeping

# Types of antidepressant for adult ADHD

- **Bupropion**
- **MAOIS**
- **TCA (desipramine and imipramine)**
- **Venlafaxine**

# FDA approval Bupropion

- **Depression**
- **Smoking cessation**
- **Preventive treatment of SAD**
- **Offlabel indications**
- **ADHD (53% Responded)**
- **Sexual dysfunction**
- **Obesity**
- **fatigue related to non psychiatric medical condition**

# Pharmacology

- **Noradrenergic agonist/dopamine reuptake inhibitor dosing 150-450 mg/kg**
- **Side effects**
- **CNS activation (insomnia, anxiety and agitation)**
- **Tremor**
- **Seizure**
- **Psychotic symptoms**
- **Nausea**
- **Dry mouth**
- **Excessive sweating**
- **Hepatotoxicity**
- **Hematopoietic change**
- **Tinnitus**
- **Rash**
- **Hypertension**
- **Weight loss**
- **Severe headaches**

# $\alpha_2$ adrenergic receptor agonists

- **Clonidine**
- **Guanfacine**
- **Norepinephrine function of the perfrontal cortex (PFC)**
- **Half life=6 h**
- **Indications**
- **Tic disorders**
- **ADHD**
- **PTSD, anxiety dis**
- **Opiate, nicotine and alcohol withdrawal**
- **Autism spectrum disorder**
- **Cognition and neuro protectio effects**

# Dosing and Side effects

- 0.1-0.2 mg/day → 0.8-1.2 mg/day (in ADHD 0.3-0.8)
- 0.2-0.4 mg/day → 1.2-2.4 mg/day
- Side effects
- Dry mouth
- Drowsiness
- Dizziness
- Constipation
- Sedation
- Nervousness
- Agitation
- Sleep disturbance
- Sexual dysfunction
- Weight gain
- Headache
- Nausea
- Vomiting

# ATOMOXETINE



- **Norepinephrine Reuptake Inhibitor**
- **Increased noradrenergic activity results in enhancement of signals that brain decided are important**
- **In prefrontal cortex 70% of dopamine released into synaptic cleft is taken up by adjacent noradrenergic neurons**
- **Thus atomoxetine increases prefrontal dopamine which works to diminish unimportant signals (noise)**
- **No noradrenergic activity in nucleus acumbens (no abuse potential) or striatum (no tics)**



# ATOMOXETINE



- **Rapidly absorbed with peak plasma concentrations in 1-2 hours**
- **Half-life 5 hours with metabolism via the cytochrome P450 2D6 pathway**
- **80% excreted through urine and rest via feces**
- **Brain concentrations may differ from plasma as therapeutic effects persist after drug has cleared peripheral circulation**

# ATOMOXETINE

- **Impacts both distractibility and hyperactivity-impulsivity with 24 hour length of action**
- **Insomnia about same as placebo**
- **Appetite can decrease if gastric upset develops.**
- **Occasional headache or dizziness**
- **Heart rate increase of 6 bpm, BP increase 1.5 mmHG for systolic and diastolic**
- **No effects on QTC interval, no requirements for ECG monitoring**
- **Lab monitoring not required**



# ATOMOXETINE



- **Dosing:**

<b>40-62 lbs</b>	<b>18mg X 4 days, then 25 mg</b>
<b>63-93 lbs</b>	<b>25 mg X 4 days, then 40 mg</b>
<b>94-126lbs</b>	<b>40 mg X 4 days, then 60 mg</b>
<b>127+ lbs</b>	<b>40 mg X 4 days, the 80 mg</b>
- **Starting dose is in range of 0.5 mg/kg/day, target dose is 1.2 mg/kg/day**
- **Doses above target dose or 100 mg in adults have little benefit**

# Secend generation antipsyshcotics

- **Risperidone**
- **Aripiprazol**
- **and ...**

# Viloxazine


- **Viloxazine (ap. age 6-17 y)**
- **selective norepinephrine reuptake inhibitor.**
- **Viloxazine is available for ADHD in the form of 100, 150, and 200 mg extended-release capsules.**
- **These capsules can be opened and sprinkled into food for easier administration**

# Psychotherapy may help you

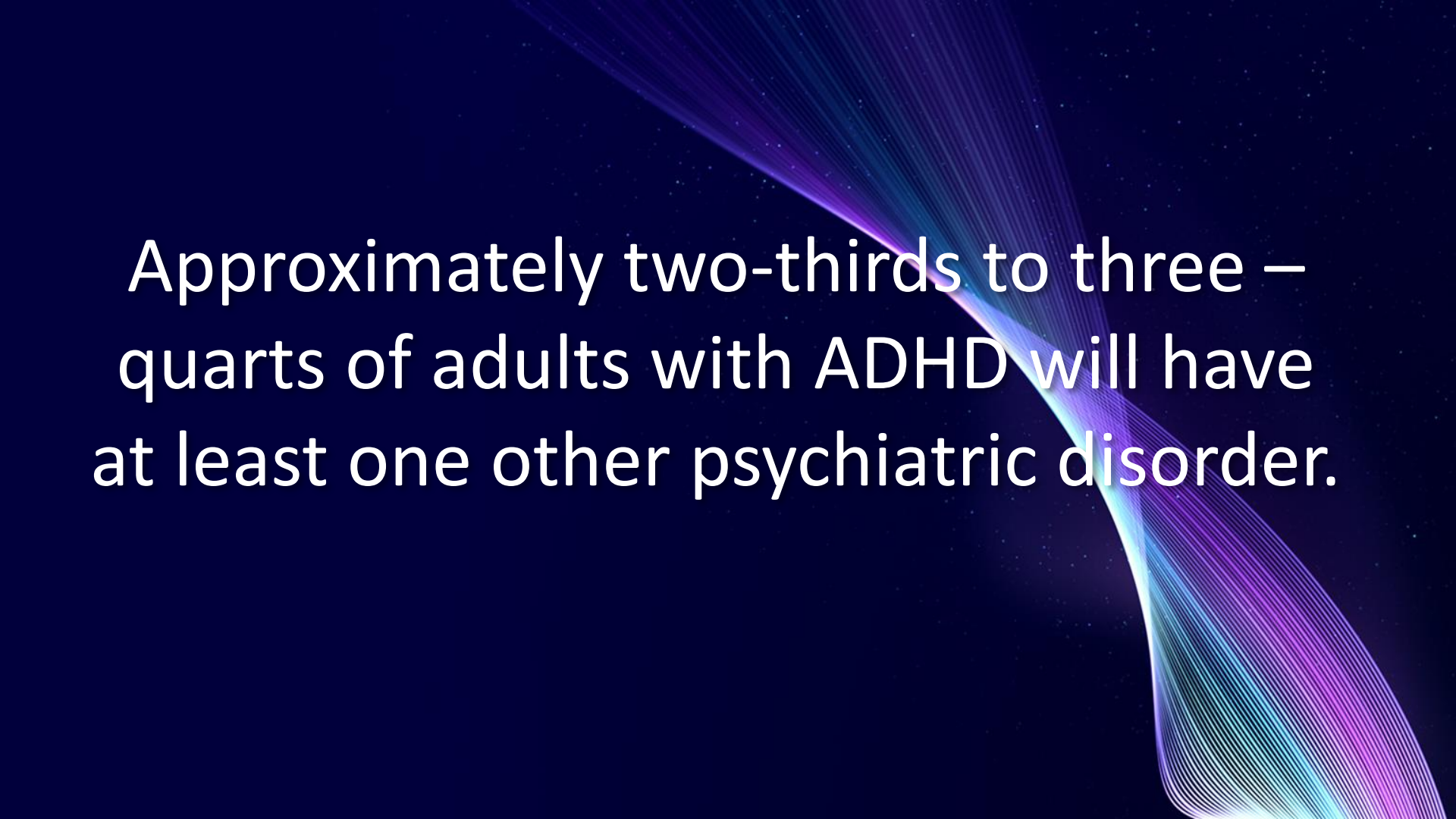
- **Improve your time management and organizational skills**
- **Learn how to reduce impulsive behavior**
- **Develop better solving skills**
- **Cope with past academic, work or social failures**
- **Improve your self-esteem**
- **Learn ways to improve relationships with your family, co workers and friends**
- **Develop strategies for controlling your temper**

# Common types of psychotrappy for ADHD :

- **CBT**
- **Marital counseling and family therapy**

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- **Life style and home remedies**
  - **Make a list of tasks**
  - **Break down tasks**
  - **Use sticky pads**
  - **Keep an appointment book**
  - **Carry a notebook or electronic device with you**
  - **Take time to setup systems to file and organize information  
follow a routine**
  - **Ask for help**





Approximately two-thirds to three –  
quarts of adults with ADHD will have  
at least one other psychiatric disorder.

# ADHD

## Comorbidity

### **Emotional/behavioral disorders**

- Anxiety
- Depression
- Oppositional defiant
- Conduct
- Substance use

### **Developmental disorder**

- Learning
- Language
- Other neurodevelopmental disorder

### **Physical conditions**

- Tics
- Sleep apnea

# Treating Adult ADHD: Substance Use Disorders (SUD)

- **ADHD has a prevalence of 22% in adults with SUD**
  - More severe disease burden
  - Higher comorbidity
- **Dopamine System**
  - Reward Pathways
  - Prefrontal Cortex
- **Medication Management**
  - Strategies
- **Psychotherapy**
  - Integrative CBT



