

Psychopharmacology of Autism

ACMES

Biomedical Advances of Autism 2013

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Conflict of Interest

- None reported

Objectives

- Review the DSM V criteria of Autism Spectrum Disorders.
- Discuss the use of medications to treat comorbidities of autism.

DSM V of Autism Spectrum Disorders

- Two major criteria:
 - Social communication/interaction deficits (all 3)
 - Social-emotional reciprocity
 - Verbal/nonverbal communication
 - Developmentally appropriate relationships
 - Restricted repetitive behavior +/- Sensory hyper/hypo-reactivity (at least 2 symptoms)

Pharmacotherapy

- Only part of a comprehensive treatment for children with autism
- Some but limited benefits for core symptoms of autism
- Studies show good benefits for selected comorbidities of autism

Aggression/Irritability

- Antipsychotics
 - Haloperidol
 - Early drug, good evidence
 - Side effects, e.g. dyskinesia
 - Risperidone
 - FDA approved in 2006
 - Side effects, e.g. metabolic syndrome, elevated prolactin, few dyskinesia
 - Aripiprazole
 - FDA approved in 2009
 - Side effects, e.g. GI problems, weight gain, sedation
 - Olanzapine
 - Limited evidence, variable benefits, metabolic syndrome
 - Ziprasidone
 - Limited evidence, variable benefits, increased QTc
 - Quetiapine
 - Limited benefits

Aggression/Irritability

- Other medications
 - Methylphenidate
 - Modest evidence, may be beneficial
 - Side effects, esp. higher dose: agitation, mood changes, stereotypies
 - Amphetamines
 - Only small studies in 1970's in schizophrenics with autistic features
 - Antiepileptics, e.g. valproate, lamotrigine
 - Modest evidence, may be beneficial
 - Side effects: medication dependent
 - Clonidine
 - Small samples, not considered first choice
 - Naltrexone
 - Small samples, minimal benefits

Repetitive Behavior

- Selective Serotonin Reuptake Inhibitors (SSRI's)
 - Proposed mechanism for its potential benefits
 - Serotonergic dysfunction in autism
 - Repetitive behavior resembles obsessions and compulsions
 - Reality: Mixed evidence suggesting benefits
 - Studied medications: fluoxetine, citalopram
 - Activation side effects: mood changes, increased activity, insomnia
- Atypical antipsychotics
 - Secondary analyses showed benefits
 - Risperidone
 - Aripiprazole
- Valproate
 - One small study showed benefits

Hyperactivity/Impulsivity

- Stimulants
 - Methylphenidate is used more often than amphetamines
 - Some benefits, but less effective in patients with autism
 - Less tolerated in patients with autism → lower starting dose by half
- Atomoxetine
 - Small study suggested some benefits
 - More tolerable side effects
- Alpha-2 agonists
 - Some benefits reducing disruptive behavior, second-line choice
 - Clonidine, guanfacine
- Atypical antipsychotics
 - Secondary analyses showed benefits, but beware of side effects
 - Risperidone, aripiprazole

Depression/Anxiety

- Selective Serotonin Reuptake Inhibitors (SSRI's)
 - Adults
 - Some evidence suggesting benefits
 - Fluoxetine, fluvoxamine
 - Children
 - Limited research
 - Higher rate of side effects, e.g. activation, somatic
- Benzodiazepam
 - Paradoxical increase in anxiety and aggression

Insomnia

- More prevalent in children with autism
- Psychosocial treatment is still first line
- Melatonin
 - Studies showed good benefits

Summary

- Medications can treat some comorbidities of autism
- Children with autism may have more trouble tolerating some medications, e.g. methylphenidate, SSRI's, benzodiazepam
- Risperidone and aripiprazole are FDA approved to treat irritability in children with autism
- Risperidone and aripiprazole may be considered to treat severe, disabling repetitive behavior
- Methylphenidate may be used cautiously to treat ADHD-like symptoms
- Melatonin treats insomnia with good results

References

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Questions?