Autism Spectrum Disorders: Pharmacological Options

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Challenges

• Assessment and diagnosis
• Lack of psychopharmacological research
• Coordinating behavioral and social interventions with pharmacotherapy
• Capacity issues

Autism Spectrum Disorders

Core symptoms of ASD:
• Deficits in Social Communication & Social Interaction
• Restricted & repetitive behaviour, interests or activities

No medication shown to impact on the core symptoms of ASD
• Psychosocial Interventions for
  ➢ For core symptoms
  ➢ For life skills

Neurochemical abnormalities

• Increased Serotonin (~ 30% affected)
• Altered developmental trajectory of brain serotonin synthesis capacity
• Reduction in GABA synthetic enzymes & receptors (Inhibition)
• Glutamate (imbalance of excitatory: inhibitory ratio)
• Oxytocin & Vasopressin linked to Social behaviours

No evidence for treatment of core symptoms

Use of medication

• Use to manage associated symptom behaviours such as
  • Aggression
  • Irritability
  • Self-Injury
  • Hyperactivity
  • Impulsivity
  • Sleep problems
  • Repetitive behaviours

• Anticonvulsants
• Chelation
• Exclusion diets
• Nutriment, minerals and dietary supplements
• Drugs specifically designed for cognitive functioning
• Oxytocin
• Secretin
• Testosterone regulation
• Hyperbaric oxygen
• Antipsychotic medication
• Antidepressant medication
Use of medication: comorbidity

- ADHD (28-44%)
- Obsessions, rituals, OCD (7-24%)
- Anxiety (42-56%)
- Mood disorders – depression, cyclical (up to 70%)
- Psychotic symptoms (12-17%)
- Tics/Tourette’s disorders (14-38%)

Evidence base

- Good quality evidence is sparse, does not mean it is ineffective
- Evidence was based on case studies instead of RCTs
- Lack of studies directly comparing different medication to manage specific behavior problems
- 45% of Adults with ASD on psychotropic medication (Langworthy-Lam et al., 2002)

Atypical Antipsychotics

- Risperidone – irritability, aggression, hyperactivity and Self-injurious behaviour (Most evidence & approved by FDA for treating irritability)
- Arispiprazole – FDA approval for irritability
- Ziprasidone – reported benefits
- Olanzapine & Quetiapine – no strong evidence
- Psychotic symptoms
- Schizophrenia

Selective Serotonin reuptake inhibitors

- Fluoxetine slight evidence that reduce repetitive behaviours
- Escitalopram, Tianeptine & Fluvoxamine
- Self-injurious behaviour- no evidence
- No effect on social impairments
- In combination with CBT for anxiety disorders
- Treatment of OCD

Antiepileptics

- Divalproex sodium – Irritability, compulsive behaviours
- Lamotrigine (inhibits glutamate release)
- Levetiracetam – no supporting evidence
ADHD symptoms

- Large scale RCT, methylphenidate is less effective in children with ASD
- More at risk from side effects of irritability, irritability, stereotypies, sleep disturbance
- Lower doses with careful clinical monitoring
- Atomoxetine in adults
- Antipsychotics

Other medications

- Anticoagulants
- B-Blockers
- Naltrexone
- Clonidine & Guanfacine
- Amantadine
  - No Good Evidence to use the above
- Melatonin for Sleep problems (BMJ: November 2012)

Prescribing Issues

- Monitor side effects
- Idiosyncratic reactions
- Can sometimes worsen behaviours
- Used only in combination with other therapeutic approaches
- Specialist clinics for complex regimes e.g. experimental drugs or polypharmacy
  - > Benefits to Risk Ratio

Capacity & Compliance

- Input from the Person with ASD and carer/family
  - Communicate the information with ASD in a way they can understand e.g. may require the use of innovative methods such as using pictures
  - Prescribe the medication at a time of day that minimizes the need for administration in multiple settings
  - Prescribe one medication at a time

Case Scenario 1

- 22 year old man
- Mild ID & ASD
- Never sits still
- Impulsive & episodes of physical aggression to others

? Any role for medication

Case Scenario 2

- 30 year old man
- Severe ID & ASD
- Unprovoked physical aggression to others
- Periods of irritability

Any role for medication?
Future Trends in Prescribing

- Combining drugs with other interventions
- Optimal doses to use
- Larger RCTs which make comparisons
- Long-term Efficacy & Safety studies
- Newer drugs e.g. Oxytocin, Cholinergic agents, r-Baclofen, Glutamatergic agents

References


NICE Clinical Guidelines Number 142: www.nice.org.uk.
