Dilemmas in prescribing in Developmental Disability
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To misquote Shakespeare
To do or not to do… That is the question!

Areas to consider
- Needs of Children vs Adults
- Developmental disabilities and the brain
- Treating the right thing
- Balance of benefits vs. side effects
- Evaluation

Areas to consider
- Size
- Maturity
  - Liver
  - Kidney
  - Brain
- Volume of distribution
- Growth
- Capacity
- Need

Getting the diagnosis right
- Important to treat the right condition
  - Differential response between disorders
- Diagnosis
  - Treatments
  - Prognosis
  - Communication to others
- Without it generalises presentation...
  - Challenging behaviour!

Who are we treating?
- Child/ Parent/ Situation
  - QoL
  - Function and arousal
- Understanding of needs
- Need to listen to parent and child
  - Do we blame or ignore too quickly
- For the medic: Sick role vs Advisory role
Diagnosis and Phenomenology

Generalisation vs individualised care

Top down or bottom up?

**Top Down:** Phenomenology

**Bottom Up:** Aetiology

**Cluster of Symptoms:** ADHD

- Inattention
- Poor Planning
- Poor social understanding
-Hyperactivity
- Cognitive flexibility problems
- Impulsivity
- Working Memory deficits
- Expressive language deficits
- Receptive language deficits
- Poor imagination

**Cluster of Symptoms:** ASD

- Inattention
- Poor Planning
- Cognitive flexibility problems
- Impulsivity
- Hyperactivity
- Obsessivity
- Tics
- Working Memory deficits
- Receptive language deficits
- Expressive language deficits
- Poor social understanding
- Poor imagination

**Cluster of Symptoms:** ASD / ADHD

- Inattention
- Hyperactivity
- Cognitive flexibility problems
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ADHD

DSM IV 314.01 ADHD Combined

DSM IV 314.00 ADHD Inattentive Type

Did not meet criteria

ADHD

Short Sensory profile (W.Dunn)

Typical performance
Probable Difference
Definite Difference

ICD10 F84.0
Childhood Autism
Atypical Autism SCD No ASD /other

F84.0 = 50% (40)
No ASD or unclear 40.9 (33)
N=60

Environment is it right?

ASD Diagnoses

Arousal: a conceptual model

Getting the diagnosis right

Important to treat the right condition

Diagnosis
• Treatments
• Prognosis
• Communication to others

Without it generalises presentation...
• Challenging behaviour!
Balance of risks
- All medication has side effects
- The list of these are not always common
- Others have been hidden
- Not all bad, some good bits too!

What to believe
- Some high profile cases tarnished the reputation of well established medication
- Not all research is hidden or completed unethically
- Sifting the mire however is not easy.

When to believe the research
- Research is always limited
- Ethical considerations
- Populations studies
- Dosage and effectiveness
- Over generalisation

Populations studied

How to pick the right medication
- Art sometimes as much as science
- Trial and error for some
- Are there overlapping factors that can influence choice
  - Comorbid Tourettes diagnosis
- Frequency of use
- Individual medicine

Commonly used Medication
With evidence!
Risperidone
- Large evidence base
- Work on dopamine system mainly
- One of few that have actual placebo controlled trials
- Does decrease arousal and improves stereotypic behaviour
- Tolerability and side effects an issue

Other Antipsychotics
- Evidence for aripiprazole to effect irritability and repetitive behaviours but not social communication
- Again Aripiprazole has sedative other side effects Evidence limited
- Olanzapine similar to aripiprazole in that some benefits but evidence limited

SSRI / Other antidepressants
- Work on different neurotransmitters
- Evidence has looked at specific symptoms
- There have been seen to be benefits in some but not others
- Does not treat core features of ASD but may affect associated symptoms
- Evidence base limited

Naltrexone
- Blocks effects of endorphins
- These endorphins are used to provide reward
- Thought to have an influence in self harming and repetitive behaviours
- Evidence limited
- Does not stop core features of ASD

Oxytocin
- Hormone produced in pituitary gland
- Thought to have effect also in social communication and social interaction and bonding
- Also has influence on sexual behaviour
- Does not remove core symptoms totally
- May make some more vulnerable
- Evidence still limited

Melatonin
- Hormone produced from pineal gland
- Natural part of sleep wake cycle
- Herbal remedy in USA and Canada
- Medication in UK
- Has beneficial effect on sleep induction
- Some evidence of pathway deficit in some with ASD
- Can be useful in right group
Others

- Lots of others
  - Anticonvulsants
  - Anxiolytics
  - Stimulants
  - Etc.
- None treat core symptoms of ASD
- All have side effects

Newer Medication and Molecules

Fragile X

- The protein missing in fragile X syndrome, FMRP, controls production of proteins at the synapse, the junction between neurons.
- mGluR-dependent protein synthesis are exaggerated when the fragile X protein (FMRP) is absent.
- mGluR5 antagonists now in phase 3 trials to help modify the effects on the pathway and affect synaptic function.
- Novartis and Roche both in trials of medication for this pathway to improve cognitive function.

TSC1

- TSC1 and TCS2 as part of the MTOR pathway.
- Mammalian target of Rapamycin found to have an effect on tuber size.
- Currently licensed for the treatment of renal tubers associated with TSC1.
- Cognitive improvement also seen.
- Various companies currently licensing medication in these areas.

Overall

- Medication use always a balance.
- Need to always treat the correct condition and highlights importance of diagnosis.
- Always consider other approaches as well.
- Rarely treats core symptoms so think why and what you are treating.
- If medication is warranted then it may well be correct way forward.

Questions