ADHD

Attention Deficit/Hyperactivity Disorder

DEFINITION

* Persistent → Inattention
  → Hyperactivity
  → Impulsivity
* Inconsistant w/ developmental stage.

TYPES

→ Inattentive predominantly
→ Hyperactive /Impulsive predominantly
→ Combined

DIAGNOSIS / DSM-5 CRITEREA

* 2 symptom domains → Inattetiveness
  → Hyperactivity / Impulsivity

- At least six inattentive symptoms:
  - Does not pay attention to details or makes careless mistakes.
  - Has difficulty sustaining attention.
  - Does not appear to listen.
  - Struggles to follow instructions.
  - Unorganized.
  - Avoids or dislikes tasks requiring high cognitive demands.
  - Misplaces or loses objects frequently.
  - Easily distracted.
  - Forgetful in daily activities.

AND/OR

- At least six hyperactivity/impulsivity symptoms:
  - Fidgets with hands/feet or squirms in chair.
  - Has difficulty remaining seated.
  - Runs about or climbs excessively in childhood (extreme restlessness in adults).
  - Difficulty engaging in activities quietly.
  - Acts as if driven by a motor (may be an internal sensation in adults).
  - Talks excessively.
  - Blurts out answers before questions have been completed.
  - Difficulty waiting or taking turns.
  - Interrupts or intrudes upon others.

+ Additional Requirements:

1. Symptoms > 6 months
2. In at least 2 settings [eg. home, school, work].
3. Lowers Quality of social/ academic /occupational functioning.
4. Onset prior (age 12), but can be diagnosed in adulthood retrospectively
5. Rule out other mental disorder or any other cause [intoxication, Traumatic brain injury]

EPIDEMIOLOGY

* Prevalence → 5% Children
  → 2.5% Adults
* ♂ > ♀ 2:1
* ♀ present more often w/ inattentive symptoms.

ETIOLOGY

* It's Multifactorial

1) Genetics [genes responsible for production of Neurotransmitters]
2) Environmental
   → Low birth weight
   → Smoking during pregnancy
   → Childhood abuse / neglect
   → Neurotoxin / Alcohol exposure

PROGNOSIS

* Stable through adolescence.
* Many Continue to have Sx as adults (inattentive > hyperactive)
* ↑ Incidence of Comorbid mental disorders.

TREATMENT

* Multimodal
  - → Medications → [The most effective Tx for ↓ core symptoms].
  - ↳ Educational
  - ↳ Behavioral interventions

Pharmacological Tx

* Symptoms of ADHD are theortically linked to ineffecient info. processing by pyramidal neurons in Prefrontal Cortex due to imbalances in neurotransmitters (Dopamine, NE)

1st Line : Stimulants

1) Methylphenidate Compounds
2) Dextroamphetamine
3) Mixed amphetamine salts

MOA

- **Mechanism of action:** indirect and central sympathomimetic activity → increased release and blocked reuptake of norepinephrine and dopamine (minor effect on serotonin) → increased concentration of norepinephrine and dopamine in the synaptic cleft → increased mental performance (e.g., improved concentration, cognition, short-term memory) and fine motor skills [19][22] bcz of reducing noise by ↑ DA ⊕ Enhance signal strenghth by ↑ NE.

α-2 agonists instead of / adjunct to Stimulants

Clonidine
Guanfacine

2nd Line : NE reuptake Inhibitor

Atomoxetine

Non-pharmacological Tx

1) Behavioral modification techniques / social skills training
2) Educational interventions
3) Parental psychoeducation.

ASD

Autism Spectrum Disorder

DEFINITION

Impairments in Social communication (+) Restrictive, Repetitive behaivors.

Why A Spectrum?

Because it composes the spectrum of symptomatology in
- → Autism
- ↳ Asperger's disorder
- ↳ Childhood disintegrative disorder
- ↳ Pervasive developmental disorder

DIAGNOSIS/DSM-5 CRITERIA

- **Problems with social interaction and communication:**
  - Impaired social/emotional reciprocity (تبادلي) (e.g., inability to hold conversations). [Can't exchange in Conversations]
  - Deficits in nonverbal communication skills (e.g., decreased eye contact).
  - Interpersonal/relational challenges (e.g., lack of interest in peers).
- **Restricted, repetitive patterns of behavior, interests, and activities:**
  - Intense, peculiar interests (e.g., preoccupation with unusual objects). (اهتمامات غير مألوفة)
  - Inflexible adherence to rituals (e.g., rigid thought patterns). → طقوس
  - Stereotyped, repetitive motor mannerisms (e.g., hand flapping).
  - Hyperreactivity/hyporeactivity to sensory input (e.g., hypersensitive to particular textures).

Special Considerations

* Abnormalities in Functioning begin in the Early developmental period
* Symptoms not explained by ID / Global developmental delay
* Causes Significant Social/Occupational impairment.

When To consider ASD as the diagnosis?

↳ 1) Rapid deterioration of Social and/or language skills during first 2 years of life.

↳ 2) Before diagnosing ASD, Complete an appropriate workup [Auditory testing]; to rule out other causes of developmental delay.

EPIDEMIOLOGY

* Recently, Prevalence increased to 1% of population
  - → Increased Awareness/Recognition
  - ↳ Expantion of diagnostic criteria
* ♂ > ♀ 4:1
* Typically, Symptoms recognized between (12 - 24 months)

ETIOLOGY

* Prenatal neurological insults [Infections, drugs].
* Advanced Paternal age, low birth weight.
* Genetic mutation (in 15% of ASD cases).
  - → Most common single gene cause: Fragile X syndrome.
  - → Other Genetic causes: [Down syndrome, Rett syndrome, Tuberous Sclerosis]
* ↑ Comorbidity w/ ID.
* Association w/ Epilepsy.

PROGNOSIS

* It's a CHRONIC condition.
* Prognosis [i.e. Adult outcome] is Variable, determined by
  - → level of Intellectual functioning
  - → level of language impairment
* Only a minority can live and work independently as Adults

TREATMENT

* NO☹ CURE for Autism
* But, we can Manage symptoms and improve basic social / cognitive skills:
  1) Early Intervention
  2) Behavioral therapy ⊕ Psychoeducation
  3) Meds As → Low dose atypical Antipsychotics
     - → Risperidone
     - → Aripiprazole

TIC DISORDERS

* Tics : Sudden, Rapid, Repetitive, Stereotyped movements OR Vocalizations.
* They are involuntary, but patients can learn to temporarily suppress them.
* Characteristics of a TIC
  - Prior to TIC → patients may feel a premonitory urge (somatic sensation).
  - Post TIC → Subsequent tension release.
  - Exacerbating Factors [Anxiety, Excitement, Fatigue]
  - Could be Simple or Complex.

TOURETTE'S

DEFINITION

* The most severe of the tic disorders
* Characterized by Multiple Motor tics and at least 1 Vocal tic Lasting for at least 1 year. [Tourette's Criteria]

Motor tics examples
- The most ↓ Common: Those involving FACE & HEAD
  - Eye blinking
  - Throat Clearing

Note
Vocal tics may appear many years after motor tics and they may wax/wane

Vocal tics examples
- Coprolalia → utterance of obscene + Taboo words, as an abrupt, Sharp bark
- Echolalia → repeating others' words

DIAGNOSIS / DSM-5 CRITERIA

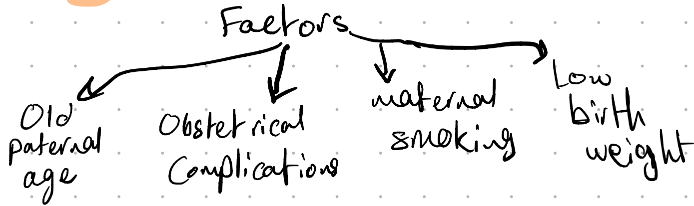
- Multiple motor and at least 1 vocal tics present (not required to occur concurrently) for more than1 year since onset of first tic.
- Onset prior to age 18 years.
- Not caused by a substance (e.g., cocaine) or another medical condition (e.g., Huntington disease).

EPIDEMIOLOGY

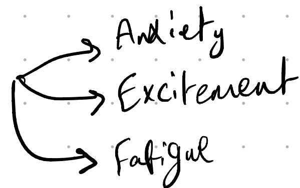
- Transient tic behaviors : Common in Children.
- Tourette's disorder 0.003 among school-age children.
- ♂ > ♀

ETIOLOGY

- Genetics. [>55% Concordance in monozygotic twins]
- Prenatal / Perinatal Factors



- Psychological Factors



PROGNOSIS

- Typically Onset [4-6 yrs], w/ Peak severity [10-12 yrs]
- Tics wax/wane & change in type
- Symptoms ↓ in adolescensce
  ↓↓↓ in adulthood
- ↑ Comorbidity → OCD, ADHD, LD, ASD

TREATMENT

- Psychoeducation.
- **Behavioral interventions**—habit reversal therapy.
- Medications—utilize only if tics become severely impairing or also treating comorbidities. Due to the fluctuating course of the disorder, it can be difficult to determine medication efficacy.
- **Alpha-2 agonists: guanfacine (first choice)**, clonidine (more sedating).
- In severe cases, can consider treatment with atypical (e.g., risperidone) or typical antipsychotics (e.g., pimozide).

Other tic disorders include:

- **Persistent (chronic) motor or vocal tic disorder**: Single or multiple motor or vocal tics (but not both) that have never met criteria for Tourette's.
- **Provisional tic disorder**: Single or multiple motor and/or vocal tics less than 1 year that have never met criteria for Tourette's.