ADHD THROUGHOUT LIFE

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Hyperactivity

Dimensional:an extreme variant of temperament
Categorical :a component of syndrome
ADD,ADDH,ADHD,HKD

Epidemiology

- 1-3% in children and adolescents
  2% in 5-16 year (community based pilot study in Bangladesh)
  M/F ratio=3:1
  commoner in younger children
  correlates::inner city area, very poor rural area,low SOS,institutional raring

DIAGNOSTIC DEFINITION

Cardinal Criteria

*Marked inattentiveness
*Marked overactivity
*Marked impulsivity
*Pervasiveness of symptoms
*Chronicity-at least 6 months of symptoms
*Early onset-within 7 year of age(Preschool years)

DIAGNOSTIC DEFINITION

Exclusion criteria

-Austistic disorder with hyperkinesis

-Hyperactivity due to Mood disorder,Anxiety disorder,and Schizophrenia

Additional criteria

-impairment of functioning

DIAGNOSTIC DEFINITION

Additional features

-Defiant,aggressiveness,Antisocial behaviour

-Problems with peer relationship

-Below average IQ

-Specific Learning problems

-Clumsiness and neurodevelopmental immaturities

-H/O developmental delay,particularly language

DIFERENTIAL DIAGNOSIS

-Normality
-Conduct disorder
-Emotional disorder(GAD,PTSD,DD,Other anxiety)
-Manic episode/Bipolar
-Movement disorder-tics,Chorea,Dyskinesia
-PDD/ASD
-MR
-Effect of medication:Phenobarb,Clonazepam,BDZ

AETIOLOGY

BIOLOGICAL

-Genetic (strong evidence)

-Developmental:immaturities in motor coordination.low IQ,early onset are the evidences

-Reduction in the normal inhibitory function of frontal lobe

-Neurochemical imbalance

-Perinatal:birth asphyxia, premature birth,neonatal jaundice

-Deficit in control process of self regulation

-Foods? additives

AETIOLOGY

PSYCHOSOCIAL

-Provocative factors in stimulation
-Institutional raring
-Deprivation
-Prental disorder:antisocial father,depressive mother
-Discordant family

AETIOLOGY

Hyperactivity is the end result of genetic factor interacting with various adverse environmental factors in a way that is poorly understood

DEVELOPMENTAL COURSE

From birth to school entry

-ages 3 days and 2.5 years:the neonates with highest frequency and speed of behaviors became the toddlers with least vigor and lowest responsiveness

-at the age of 3 years ADHD is a good predictors of the presence of ODD/Conduct disorder in Later childhood

DEVELOPMENTAL COURSE

From School age to Adolescence

-Typically wanes in adolescence
-1/4th remains with symptoms mainly inattentiveness and impulsivity
-Poor self esteem &peer relationship
-negative academic outcome
-Substance abuse,antisocial behavior
-ADHD is a risk factor for outcome in later childhood comorbidity with CD
-Adverse outcome is also related with the Discordannt family relationships

DEVELOPMENTAL COURSE

Outcome in adult life

-Majority remitted but Dx of ADHD remains
 for whom diagnostic criteria persists(uncommon)
-More than half do well as adults(Pure hyperactivity)
-Academic underachievement/failure
-Suffers with multiple accidents due to impulsivity
-Aggressiveness
-Explosive/immature type of personality
-Impaired relationship problems
-Negative academic/social outcome
-High risk of development of Antisocial PD,
 Substance use disorder,Depression

ASSESSMENT

-History from multiple sources-school report
-Direct observation in different settings
-Clinical examination:psychiatric evaluation
-Supplimented measures
 Home Hyperactivity Scale(Scott)
 Conners Rating Scale
 SDQ(Goodman)
 CBCL(Achenbach)
 Rutter’s A2, B2

ASSESSMENT

Specific Test

For Attention Deficit

-CPT(Continuous Performance Test)

a)CPT Gaze-Gaze on Task

b)CPT FBM-Fine Body Movement

-Symbol Search Sub Test of WISCIII

For Impulsivity

-Kagan's MFFT(Matching Familiar Figure Test)

For Motor Activity

-Actoometer,Activity room

ASSESSMENT

Nonspecific Test

Short term Memory Test

- -Digit Span Test

Speed & Response Test

- -Serial and Choice Reaction Time Test

New Learning Test

- -PALS(Paired Associated Learning Test)

Others

- -Intellegence Test,Educational assessment

MANAGEMENT

Major Components:

1. **Explanation, advice and support**
2. **Pharmacotherapy**
3. **Psychosocial approach**

MANAGEMENT

Pharmacotherapy:First line

Stimulants-Well tested efficacy

Short acting

*Methyl Phenidate(Ritalin,, Methylin)-6 yrs & older

*Dexmethyl Phenidate Hcl(Focaline)

*Dextroamphetamine(Dexidrine,)-3 yrs & older

*Mixed Salts of a Single Entity Amphetamine Product(ADDERALL)

*Pimoline *Caffeine

Methyl Phenidate is the best followed by dextroamphetamine &Pimoline(McClelan&Scott,2003)

MANAGEMENT

Pharmacotherapy:First line

Stimulants

<u>Long acting</u>

*Methyl PhenidateHcl(Concentra,RitalinLA,MetadateER, ADDERAL XR)

- -Long half life through 12 hour
- -One morning dose
- -Crush resistant that discourage abuse
- -Low incidence of loss of appetite(4%) &insomnia(4%)

MANAGEMENT

Pharmacotherapy:Second line

Antidepressants

*TCAs-Imipramine,Desipramine,Clomipramine(limited/ lower efficacy)

*NonTCA/heterocyclic-Bupropion(effective as methyl Phenidate)

*SSRIs-Fluvoxamine,Sertraline(8 &6 yrs and older)

*NARI-Automexetine(Strattera);effective(6yrs &older)

*MAOIs-Clorgiline,Tranylcypramine(efficacyeqevalent to dextramphetamine)

Indication:ADHD with Depression/Anxiety in older age

MANAGEMENT

Pharmacotherapy:Second line

Alpha-Adrenergic agonists(effective)

*Clonidine

*Guanfacine

Indication;ADHD plus Tics(Turett's)

Combind therapy:Clonidine plus Methyl Phenidate give best outcome in such comorbidity(turett's Study Group,2002)

MANAGEMENT

Pharmacotherapy:Third line

Antipsychotics(Effective in low dose)

*Risperidone-helpful in Hyperkinesis and aggressive and self-injurious behavior in youth with Autistic disorder

*Haloperidol-similar findings were noted for the last 30 yrs

*CPZ

*Thioridazine

Due to side effect profile and lower efficacy than stimulants limits the use of conventional antipsychotics in ADHD

MANAGEMENT

Pharmacotherapy:Others

Mood stabilizing Agents(Metaanalysis supports some efficacy)

*Valproate(only one study ,Donovan al,2000)

*CBZ(Few collaborative study;Silva et al, 1996)

Diet

Exclusion of artificial preservatives,colorants,orange,wheat product,milk product(difficult &very occasionally effective)

MANAGEMENT

PSYCHOSOCIAL INTERVENTION

*Family Counseling-essential component

*Behavior Modification Therapy through contingency management

- -Behavior Classroom Intervention
- -Behavior Parent Training

*CBT(Promoting improved self control through problem solving strategies)-useful when combined with the other multimodal treatment

*Systemic Multimodal Intervention

-RECAP(The Reaching Educators,Children and Parents)

MANAGEMENT

Psychosocial

-Preschoolers benefit without the need for medications (SonageBake et al,20010)

-Overall behavior strategies is less effective than medication alone(AACAP,1997)

-Improvement rate is not persistent beyond the period of treatment

-not generalized in other settings

Combination of Medication and psychosocial intervention give better results

CONCLUSION

-Hyperactivity causes adverse impact on effected children and a great burden to caregiver
-Persistent of symptoms of Hyperactivity into adolescence and adult life is well recognized
-Biological mechanism predisposes to hyperactivity& psychosocial factors maintain it
-ADHD is the main area of pharmacotherapy among child &adolescent problem where its value is clear
-Combined intervention
Early intervention can minimise its bad consequences
-Cooperation between professional &training is needed

Thank you