

UPDATE ON TREMOR AND DRUG-INDUCED MOVEMENT DISORDERS

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TREMOR

This talk will cover the phenomenology of different tremors using video examples to aid recognition.

Definition: tremor is an oscillatory movement around a joint

Types: defined according to examination: -

a) Position in which predominant tremor is seen:-

- **REST:** present sitting and lying quietly with eyes closed; neck relaxed on pillow
- **ACTION:**
 - POSTURE HOLDING (arms outstretched and eyes closed; hands in front of face with bent elbows; rotate hands slowly; legs – lift and sustain extension. Neck – move in different directions; voice – sustain a note
 - INTENTION (index finger reach with outstretched arm towards target and then back to nose; toes lift to touch target
 - Writing; Holding and pouring a cup of water
 - Standing
 - Walking

b) Frequency and amplitude:

- High frequency; low amplitude (enhanced physiological tremor; Orthostatic tremor)
- Low frequency (PD rest tremor; Dystonic tremor)

c) Other features

- Distribution: Face; lips; voice; neck; arms (proximal) and distal; trunk; legs
- 'Company it Keep'; : Other neurological disorders
- Onset – sudden or progressive
- Family history: 50% of ET patients have positive FH; Dystonic tremor associated with DYT genes
- Other Medical history – drugs; metabolic disorders

COMMON TYPES OF TREMOR DIAGNOSED ACCORDING TO EXAMINATION

1. Bilateral upper limb tremor high frequency intention and posture tremor
 - ESSENTIAL TREMOR
 - ENHANCED PHYSIOLOGICAL TREMOR (lower amplitude than ET)
 - DRUG-INDUCED TREMOR (no head tremor)
 - METABOLIC DISEASE eg Hyperthyroidism
 - SECONDARY TO PERIPHERAL NEUROPATHY
2. Unilateral or bilateral asymmetrical low frequency limb intention tremor with terminal worsening and trunk and neck intention tremor; and ataxia
 - CEREBELLAR DISEASE
3. Unilateral limb or neck low frequency; irregular; postural and rest tremor; and dystonic posturing
 - DYSTONIC TREMOR
4. Unilateral and bilateral low frequency rest tremor in limbs and bradykinesia

PARKINSONIAN SYNDROMES (and re-emergent rest tremor on outstretched hands)

DRUG-INDUCED TREMOR

5. Unilateral rest, posture and intentional limb tremor (plus dystonia; spasticity)

MID-BRAIN OR HOLMES TREMOR

6. Upper limb mixed postural and intention limb; proximal tremor (plus dystonia, spasticity; ataxia)

WILSON'S DISEASE

7. Leg high frequency tremor on standing that stops when walking (may have posture-holding arm tremor as well)

ORTHOSTATIC TREMOR

8. Bizarre, incongruous suppressible and entrainable tremors

CONSIDER FUNCTIONAL TREMOR

Suggested further reading

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DRUG-INDUCED MOVEMENT DISORDERS

SUMMARY: SEE SLIDES FOR DETAILS

Movement disorders induced by drugs are common. The temporal relationship between starting a drug and then resolution on discontinuing should allow the aetiology to be established. Tardive syndromes would be the exception (as can occur / worsen after discontinuing the drug). If a patient is on a drug known to cause a movement disorder – then the cause is likely the drug, until proven otherwise. Withdrawal of an offending drug and resolution of symptoms may take up to 3 months.

Many drugs induce movement disorders – either directly due to a neuropharmacological action eg dopamine receptor mediated; or indirectly due to a secondary medical cause eg renal failure inducing impaired clearance of a drug that may result in myoclonus; or illicit drugs that induce basal ganglia pathology and secondary movement disorders.

The phenomenology of the movement disorder is frequently similar to non drug-induced causes, and often may not help in diagnosis.

The cause of the drug-induced movement disorders can often be determined from the speed of onset. The onset can be acute (hours/day), subacute (days- weeks), or chronic (weeks – months)

Acute/Subacute drug-induced movement disorders

Dystonia secondary to anti-psychotics; anti-emetics (children).

Tremor (Beta-agonists eg salbutamol); Caffeine

Akathisia (antipsychotics; SSRIs)

Chorea Secondary to recreational/illegal drugs (amphetamines/cocaine)

Parkinsonism

Chronic drug-induced movement disorders

Tardive dyskinesia/Tardive dystonia/Tardive tics

Drug -induced parkinsonism

Drug-induced tremor (eg chemotherapy)

Treatment options.

Acute drug-induced movement disorders generally resolve after drug withdrawal. In the case of Parkinsonism, lack of improvement may indicate an 'unmasking' of an underlying as yet undiagnosed idiopathic PD. Treatment of Tardive syndromes is complex (see slides); and the main stay of management is prevention, and close monitoring of subjects on anti-psychotic drugs

Further Reading (see Slides for further references)

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Zádori D, Veres G, Szalárdy L, Klivényi P, Vécsei L. Drug-induced movement disorders. *Expert Opin Drug Saf.* 2015 Jun;14(6):877-90

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