APPROACH TO THE SHAKY PATIENT

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Introduction to the Clinical and Diagnostic Approach to Tremor

A tremor is a rhythmic mechanical oscillation located in at least one body region. Tremor is defined by 1) the affected body region(s), 2) the condition during which tremor is activated (rest, posture, etc.), and 3) the frequency of the tremor. In general, a tremor less than 4 Hz is slow, 4-7 Hz is medium, and >7 Hz is fast.

In 1998, the International Parkinson and Movement Disorder Society (MDS) published a consensus statement on tremor. This paper defined tremor types by activating condition (1). The classification is as follows:

A. Rest tremor: This describes a tremor that occurs in a body part completely supported against gravity.

1. The limb is truly at rest and not voluntarily activated.
2. The amplitude of the tremor increases during mental tasks or with motor activation of another body part (i.e. hand tremor increases when walking).
3. The amplitude of the tremor diminishes or ceases during voluntary activities.

B. Action tremor: This describes a tremor that occurs during any voluntary activity. This is a broad category describing tremor that occurs during posture, intention, goal and non-goal directed activities.

1. Postural tremor: A tremor occurring when the limb is voluntarily held in a posture against gravity. A rare variant is when the tremor only occurs during a specific posture. This is identified as a position-specific or position-sensitive tremor.
2. Kinetic tremor: This describes tremor that occurs during any voluntary movement.
    a) Simple kinetic tremor: This occurs during non-goal directed movements and does not increase when approaching a target. It can be seen during movements such as flexion/extension of the wrist or pronation/supination of the hand.
    b) Task-specific kinetic tremor: This occurs during specific activities such as handwriting or playing a musical instrument.
    c) Intention tremor: This occurs during visually guided, goal directed activity. The tremor will enhance, increasing in amplitude as the limb approaches the target.
    d) Isometric tremor: This occurs when a voluntary muscle contraction is opposed by a rigid stationary object. It may be elicited by squeezing the hand into a fist or squeezing the examiner's fingers.

Physiologic and Enhanced Physiologic Tremor:

Physiologic tremor is present in neurologically healthy individuals. It is a low amplitude, high frequency postural tremor (2). Physiologic tremor can be subtle and may be missed during a routine physical examination. Slowing of the normal 8-12 Hz frequency should prompt a search for a pathological cause (e.g. essential tremor), irrespective of the patient's age (3, 4).

A physiologic tremor may become enhanced, and thus more visible. Emotions, muscle fatigue, medications, recreational drugs, alcohol, heavy metals, and medical conditions are all potential causes (5-13).
It is often unnecessary to treat an enhanced physiologic tremor. Addressing the underlying cause is the ideal way of treating the tremor. However, β-2 antagonists, such as propranolol, can be helpful for symptomatic tremor treatment when a reversible cause is not identified.

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