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ELDER CARE

A Resource for Interprofessional Providers

Diagnosing Tremors

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Tremor, characterized by involuntary, rhythmic and oscillatory movements of a body part, is a common finding in older adults. It can affect quality of life by impeding activities of daily living or simple motor tasks, and increase self-consciousness. Causes range from benign physiological tremors to serious neurodegenerative disorders like Parkinson's Disease (PD). While tremor can be classified according to frequency, amplitude, and situations in which it occurs, it is often more helpful to categorize tremors into syndromes. This Elder Care will review the most common geriatric tremor syndromes.

Parkinsonian Tremor is a resting tremor; it occurs when the affected body part is at rest, such as when the arm and hand are resting in a person's lap. The tremor decreases with directed action, such as pointing to an object or to one's nose. Resting tremor is typical of classic PD, in which the tremor often begins unilaterally. Tremor may be the only presenting symptom of PD, though patients often show other signs of the disease, such as rigidity, cogwheeling, bradykinesia, or gait difficulty. A similar tremor occurs in drug-induced Parkinsonism. Common offending drugs are metoclopramide and the phenothiazines (including the anti-emetic, promethazine).

Essential Tremor is the most common movement disorder, estimated to occur in over 5% of individuals over 65 years of age. It is usually considered to be a postural tremor – i.e., it occurs when a body part holds its position against gravity. Thus, essential tremor is seen when the arms are held in an outstretched position. It also may have an intention component, with the tremor increasing at the end of a directed action such as pointing to an object, drinking from a glass, or finger-to-nose testing. The arm tremor may begin unilaterally and over time become bilateral. The head may also be involved and demonstrates either a vertical or horizontal movement. The legs are rarely involved, and thus gait is almost always normal (as opposed to narrow-based and shuffling in classic PD). In up to half of cases, essential tremor is familial, with dominant inheritance. Essential tremor is usually lessened by alcohol.

Cerebellar Tremor has some similarities to essential tremor, in that it is seen with intention (directed actions such as pointing to an object). But, in contrast to essential tremor, the intention tremor in cerebellar disease begins as the extremity approaches the object, rather than just at the very end of the directed action. There also may be a postural component, seen as a head tremor, which appears as a "bobbing" to-and-fro movement of the head called titubation. The key to distinguishing cerebellar from essential tremor is usually the presence of other cerebellar signs, such as ataxia and dysmetria (undershoot or overshoot when pointing to an object). Patients with cerebellar tremor may have abnormalities on neuroimaging, such as stroke, tumor, or demyelination. It can also be associated with traumatic brain injury.

Physiologic Tremor is a benign postural tremor that occurs in everyone but is usually not visible to the naked eye. It is particularly evident during slow movements, such as eating or bringing a fluid-filled cup to the lips. It can increase and become visible in the presence of sympathetic nervous system stimulation from drugs (e.g., beta-adrenergic agonists, amphetamine-like drugs, selective serotonin reuptake inhibitors, caffeine) and certain disease states (e.g., hyperthyroidism, hypoglycemia, alcohol or opioid withdrawal). Anxiety, fear, or excitement can also produce this type of tremor. The tremor is present equally in the upper and lower extremities, which distinguishes it from all of the previously described tremors. The tremor is reversible when the stimulus is removed.

The diagnostic approach to tremor involves detailed history, medication reconciliation, neurologic examination, and select laboratory or imaging tests. An approach to distinguishing the common types of tremor is outlined in Figure 1. Patients with a tremor that does not fall easily into one of the above categories should be considered for neurology consultation.

TIPS FOR DIAGNOSING TREMOR

- Tremor that occurs when an arm or hand is at rest and supported on the lap is typical of **Parkinsonian tremor**. Early symptoms are usually unilateral.
- Tremor of an outstretched arm, or in the last motions of reaching for an object, is typical of **essential tremor.**
- Tremor that occurs while reaching for something, rather than at the last moments of reaching for it, is suggestive of **cerebellar tremor;** ataxia and dysmetria may also be present.
- A **physiologic tremor** is a "natural" tremor which is exacerbated by sympathetic nervous system stimulation, whether from medications, disease states, or anxiety.

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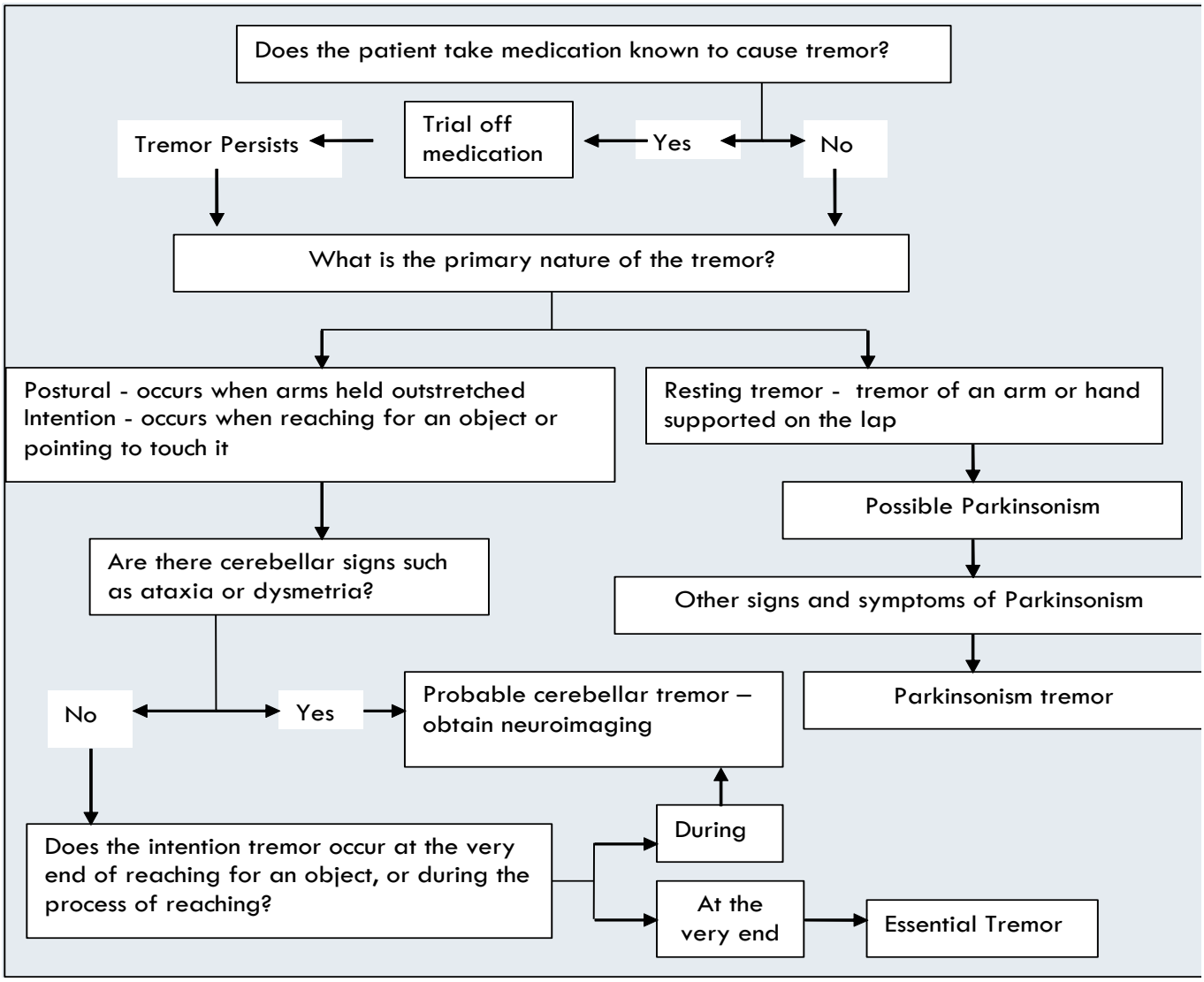
Figure 1. An Approach to Distinguishing the Common Types of Tremor in Older Adults



References and Resources

Deuschl G, Petersen I, Lorenz D, Christensen K. Tremor in the elderly: Essential and aging-related tremor. Mov Disord. 2015 30(10):1327-34.

Louis ED. Clinical practice. Essential tremor. *N Engl J Med*. 2001;345(12):887-891.

National Institute of Neurological Disorders and Stroke. Tremor Fact Sheet. May 2017. https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Tremor-Fact-Sheet

Smaga S. Tremor. *Am Fam Physician*. 2003;68(8):1545-1552.

Tolosa E, Wenning G, Poewe W. The diagnosis of Parkinson's disease. *Lancet Neurol*. 2006;5(1):75-86.

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