Treatment of Essential Tremor

Pharmacologic and surgical options by evidence tier for essential tremor (ET), plus agents to avoid and key clinical context.

2011 AAN Evidence-Based Guideline Update
Treatment of Essential Tremor
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LEVEL · A · Established · B · Probable · C · Possible · U · Insufficient Evidence

1 Level A — Established Effective (Should Be Offered)

AGENT	EVIDENCE	LEVEL
Propranolol	First-line; Class I evidence supports successful use for limb tremor; only medication FDA-approved for ET	A
Primidone	First-line; Class I evidence supports successful use for limb tremor	A
Non-response	30%–50% of patients will not respond to either primidone or propranolol	—

2 Level B — Probably Effective (Should Be Considered)

AGENT	EVIDENCE	LEVEL
Options	Alprazolam, atenolol, gabapentin (monotherapy), sotalol, topiramate — for limb tremor in ET	B

3 Level C — Possibly Effective (May Be Considered)

AGENT	EVIDENCE	LEVEL
Pharmacologic	Nadolol, nimodipine, clonazepam, botulinum toxin A — for limb tremor in ET	C

4 Surgical Options

PROCEDURE	EVIDENCE TIER	LEVEL
Thalamotomy	Possibly effective for contralateral limb tremor; based on evidence no better than Class IV	C
DBS (thalamus)	Possibly effective; relative efficacy vs thalamotomy, unilateral vs bilateral not established	C
Gamma knife thalamotomy	Insufficient evidence to support or refute	U

5 Level U — Insufficient Evidence

AGENT	EVIDENCE	LEVEL
Options	Pregabalin, zonisamide; clozapine for chronic use (downgraded from Level C)	U

6 Not Recommended

B neg **Probably ineffective:** levetiracetam and 3,4-diaminopyridine do not reduce limb tremor — should not be considered.

C neg **Possibly ineffective:** flunarizine has no effect on limb tremor — may not be considered.

7 Clinical Context

– **First-line limits:** 70.9% of patients had taken primidone or propranolol; 56.3% discontinued one or both — first-line therapy fails many patients.

– **Flunarizine/olanzapine risk:** both can induce movement disorders (akathisia, dyskinesia, dystonia, parkinsonism); weigh before use.

– **Head tremor:** propranolol carries a separate, lower-level recommendation specifically for head tremor (unchanged from the 2005 parameter).

– **Legacy agents, no new data:** alprazolam, atenolol, gabapentin (mono/adjunct), sotalol, clozapine, acetazolamide, isoniazid, pindolol, trazodone, methazolamide, mirtazapine, nifedipine, verapamil, sodium oxybate, oxcarbazepine, tiagabine, amantadine, clonidine, glutethimide, metoprolol, nicardipine, phenobarbital, quetiapine, and theophylline retain their 2005-parameter conclusions — no Class I–III trials published since.

– **Pathophysiology:** ET is likely a heterogeneous syndrome rather than a single disease, limiting targeted drug development.

Zesiewicz TA, Elble RJ, Louis ED, et al. Evidence-Based Guideline Update: Treatment of Essential Tremor: Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2011;77(19):1752–1755.