

Choosing antiseizure medication



Based on Asadi-Pooya, AA, Beniczky, S, Rubboli, G, Sperling, MR, Rappaport, S, Perucca, E. A pragmatic algorithm to select appropriate antiseizure medications in patients with epilepsy. Epilepsia. 2020; 61: 1668– 1677; available online as EpiPick tool

How to use it

1

Select a **seizure type** and see how medications are ranked

2

Up- or downgrade the medications based on **modifiers** (see the back side)

3

Select the medication ranked first

Type	First level	Second level	Third level
Absence	ETS, VPA	LTG	LEV, ZNS, ACT, CLB, CLN
Myoclonic	CLN, VPA, LEV	CLB	TPM, ZNS, PB, NTR
Prim. GTC	VPA	LTG, LEV	OXC, CLB, ZNS, LCM, TMP, PB, PER, PHT, CBZ, BRV
Prim. GTC + myoclonic	VPA	LEV	CLN, LTG, ZNS, CLB, TPM, PB, PER, PHT, LCS, BRV
Prim. GTC + absence	VPA	LTG, LEV	TPM, ZNS, CLB
Prim. GTC + myoclonic + absence	VPA	LTG, LEV	TPM, ZNS, CLB, CLN
Myoclonic + absence	VPA, ETS	LTG, LEV	TPM, ZNS, CLB, CLN
Focal	LEV, CBZ, LTG OXC, ESL, LCM	TPM, VPA, PER, PHT, BRV, ZNS	CLB, PB, GBP, PGB
Unknown + age ≥ 21	LEV, CBZ, LTG OXC, ESL, LCM	VPA, PER, PHT, BRV, ZNS, TPM, CLB	PB, GBP, PGB
Unknown + age < 21	VPA, LTG, LEV	CLB, CBZ, PER, ESL, OXC, LCM	PB, TPM, ZNC

Abbreviations: ACT, acetazolamide; BRV, brivaracetam; CBZ, carbamazepine; CLB, clobazam; CLN, clonazepam; ESL, eslicarbazepine acetate; ETS, ethosuximide; GBP, gabapentin; LCM, lacosamide; LEV, levetiracetam; LTG, lamotrigine; NTR, nitrazepam; OXC, oxcarbazepine; PB, phenobarbital; PER, perampanel; PGB, pregabalin; PHT, phenytoin; TPM, topiramate; VPA, valproic acid; ZNS, zonisamide; Prim. GTC; primary generalized tonic-clonic

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Premenopausal women



VPA

Focal seizures:
discard
GTCS: **2nd level**
Other types:
3rd choice



LTG, LEV

GTCS: **1st choice**

Age > 65 years



GBP, LCM,
LEV, LTG

upgrade by
one level

Neutropenia



CBZ, PHT

downgrade by
one level

Diabetes mellitus



CBZ, PER,
PHT, VPA

downgrade by
one level

Hx of irritability



LEV, PER,
PB, TPM

downgrade by
one level

Migraine



TPM, VPA

upgrade by
one level

Renal stones



ACT, TPM,
ZNS

downgrade by
one level

Brain tumor requiring chemo-/radiotherapy



ESL, CBZ, PB, OXC, PHT
downgrade by **two** levels

Hepatic failure



GBP, LCM, LEV
upgrade by **one** level

Oral contraceptive intake



PER, TPM

downgrade by **one** level
 ESL, CBZ, OXC, PB, PHT
 downgrade by **two** levels



LTG
Estrogen reduces LTG levels;
LTG moderately reduces
levonorgestrel levels

Bleeding disorders



VPA

Generalized
 downgrade by **one** level
 Focal or unknown
 downgrade by **two** levels

Co-medications (except contraceptives)



CBZ, PB,
PHT

downgrade by
one level



BRV, GBP, LCM,
LEV, LTG,
PER, ZNS

Focal or
unknown:
upgrade by
one level



ETS, LCM, LEV,
LTG, PER, ZNS

Generalized:
upgrade by
one level

Obesity



GBP, PGB

downgrade by **one** level



VPA

Generalized
 downgrade by **one** level
 Focal or unknown
 downgrade by **two** levels

Allergy to any drug



ESL, CBZ, LTG,
OXC, PB,
PHT, ZNS

downgrade by
one level

Renal failure



CLB, ETS, LTG,
CBZ, PHT
upgrade by **one** level



VPA

downgrade by **two** levels

Depression



LTG
upgrade by **one** level



CLB, CNZ, LEV, NTZ, PB
 downgrade by **one** level