

# Choosing antiseizure medication



Based on Asadi-Pooya, AA, Beniczky, S, Rubboli, G, Sperling, MR, Rampp, 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
<b>Absence</b>	ETS, VPA	LTG	LEV, ZNS, ACT, CLB, CLN
<b>Myoclonic</b>	CLN, VPA, LEV	CLB	TPM, ZNS, PB, NTR
<b>Prim. GTC</b>	VPA	LTG, LEV	OXC, CLB, ZNS, LCM, TPM, PB, PER, PHT, CBZ, BRV
<b>Prim. GTC+ myoclonic</b>	VPA	LEV	CLN, LTG, ZNS, CLB, TPM, PB, PER, PHT, LCS, BRV
<b>Prim. GTC + absence</b>	VPA	LTG, LEV	TPM, ZNS, CLB
<b>Prim. GTC + myoclonic + absence</b>	VPA	LTG, LEV	TPM, ZNS, CLB, CLN
<b>Myoclonic + absence</b>	VPA, ETS	LTG, LEV	TPM, ZNS, CLB, CLN
<b>Focal</b>	LEV, CBZ, LTG, OXC, ESL, LCM	TPM, VPA, PER, PHT, BRV, ZNS	CLB, PB, GBP, PGB
<b>Unknown + age ≥ 21</b>	LEV, CBZ, LTG, OXC, ESL, LCM	VPA, PER, PHT, BRV, ZNS, TPM, CLB	PB, GBP, PGB
<b>Unknown + age &lt; 21</b>	VPA, LTG, LEV	CLB, CBZ, PER, ESL, OXC, LCM	PB, TPM, ZNS

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**

### 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

### Age > 65 years



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

### Bleeding disorders



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

### Neutropenia



CBZ, PHT downgrade by **one** level

### Diabetes mellitus



CBZ, PER, PHT, VPA downgrade by **one** level

### 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

### Hx of irritability



LEV, PER, PB, TPM downgrade by **one** level

### Migraine



TPM, VPA upgrade by **one** level

### Obesity



GBP, PGB  
downgrade by **one** level



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

### Renal stones



ACT, TPM, ZNS downgrade by **one** level

### Brain tumor requiring chemo-/radiotherapy



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

### Allergy to any drug



ESL, CBZ, LTG, OXC, PB, PHT, ZNS  
downgrade by **one** level

### Hepatic failure



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



VPA  
downgrade by **two** levels

### Renal failure



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



All other drugs  
downgrade by **one** level

### Depression



LTG  
upgrade by **one** level



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