Epilepsy in Elderly

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ประเด็นที่ต้องพิจารณาในผู้สูงอายุ

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Difference diagnosis in elderly

- Patients often can not provide a history
- Seizures are often not observed by other
- Elderly with cognitive impairment
- Live alone
- Multiple comorbidities

Clinical clues to the diagnosis of epilepsy in elderly people

- Confusion, behavioural change
- Unresponsiveness without loss of postural control
- Loss or impairment of consciousness
- Frequent falls

Key questions for elderly patients and witnesses when assessing a suspected epileptic seizure

Ask the patient	Ask the witness
What were you doing at the time?	What was the patient doing at the time?
Did you get any warning?	Did you notice or did the patient complaint of anything before the event happened?
Did you "black out" if so, for how long?	Did they lose consciousness, have altered responsiveness, or seem unaware of your presence? If so, for how long did this last?
What happened afterwards?	Were they still or did they jerk, twitch, or move?
Do you take any medications and have any been changed recently?	What happened after the event?
Was there a witness?	Did anyone try to take the pulse?

Adapted from "Epilepsy in later life-good practice guide", with permission from Epilepsy Scotland.

Wrong diagnosis

- 593 elderly with epilepsy
- Altered mental status 41.8%
- Confusion 37.5%
- Black out 29.3%
- Memory disturbances 17.2%
- Syncope 16.8%
- Dizziness 10.3%
- Dementia 6.9%

ผู้ป่วยลมชักจำแนกตามอายุระหว่างปี 2547-2555

		จำนวน	ร้อยละ
Age (year)	18-29	30,145	19.72
	30-39	29,195	19.1
	40-49	30,655	20.05
	50-59	23,849	15.6
	60-69	18,484	12.09
	70-79	14,399	9.42
	80+	6,144	4.02
รวม		152,871	

Demographic data of epilepsy in the elderly patients admitted all over Thailand during 9 year study period from 2004-2012

Variables	Age admission (y)			Total
	60- <70	70-<80	80+	Count (%)
	No. (%)	No. (%)	No. (%)	73,101(100.0)
Total	33,956 (46.5)	28,175 (38.5)	10,970 (15.0)	
Sex				
Male	20,765 (61.15)	16,422 (58.29)	5,671 (51.70)	42,858 (58.63)
Female	13,191 (38.85)	11,753 (41.71)	5,299 (48.30)	30,243 (41.37)
Hospital level				
Primary	16,184 (47.66)	13,403 (47.57)	5,007 (45.64)	34,594 (47.32)
Secondary	7,139 (21.02)	6,025 (21.38)	2,410 (21.97)	15,574 (21.30)
Tertiary	9,323 (27.46)	7,741 (27.47)	3,163 (28.83)	20,227 (27.67)
Private	1,310 (3.86)	1,006 (3.57)	390 (3.56)	2,706 (3.70)
Regions				
Central	9,913 (29.19)	8,463 (30.04)	3,437 (31.33)	21,813 (29.84)
Northern	9,556 (28.14)	8,473 (30.07)	3,385 (30.86)	21,414 (29.29)
Northeast	11,329 (33.36)	8,370 (29.71)	2,849 (25.97)	22,548 (30.84)
Southern	3,158 (9.30)	2,869 (10.18)	1,299 (11.84)	7,326 (10.02)

Discharge status of epilepsy in the elderly patients admitted all over Thailand during 9 year study period from 2004-2012

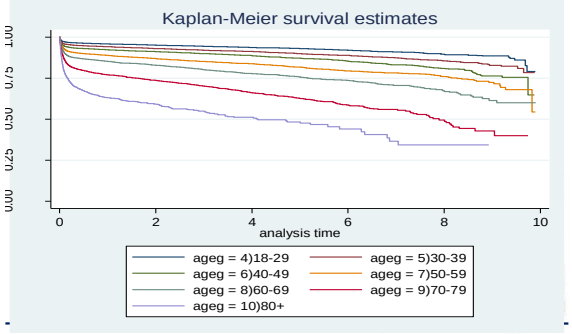
Age admission (year)	Discharge status				Total
	Complete recovery	Improved	Not improved	Death	Count (%)
	Count (%)	Count (%)	Count (%)	Count (%)	
60-<70	139 (0.41)	29,671 (87.38)	2,685 (7.91)	1,461 (4.30)	33,956 (46.5)
70-<80	140 (0.50)	23,809 (84.50)	2,439 (8.66)	1,787 (6.34)	28,175 (38.5)
80+	45 (0.41)	8,770 (79.95)	1,085 (9.89)	1,070 (9.75)	10,970 (15.0)
Total Count (%)	324 (0.44)	62,250 (85.16)	6,209 (8.49)	4,318 (5.91)	73,101 (100.0)

Co-morbid conditions of epilepsy in the elderly patients admitted all over Thailand during 9 year study period from 2004-2012

Comorbidity	Age admission (year)			total
	60-70	70-80	>80	Count (%)
	Count (%)	Count (%)	Count (%)	
Previous epilepsy, seizure	477 (1.40)	346 (1.23)	115 (1.05)	938 (1.28)
DM	4,886 (14.39)	4,099 (14.55)	1,211 (11.04)	10,196 (13.95)
HT	11,342 (33.40)	11,238 (39.89)	4,578 (41.73)	27,158 (37.15)
CKD	1,831 (5.39)	2,052 (7.28)	958 (8.73)	4,841 (6.62)
Stroke	1,925 (5.67)	1,857 (6.59)	744 (6.78)	4,526 (6.19)
CNS infection	190 (0.56)	116 (0.41)	36 (0.33)	342 (0.47)
Head injury	535 (1.58)	371 (1.32)	85 (0.77)	991 (1.36)
Brain tumor	175 (0.52)	126 (0.45)	26 (0.24)	327 (0.45)
Subdural hematoma	114 (0.34)	116 (0.41)	45 (0.41)	275 (0.38)
Cirrhosis	297 (0.87)	178 (0.63)	53 (0.48)	528 (0.72)
Alcoholism	217 (0.64)	91 (0.32)	22 (0.20)	330 (0.45)
Psychosis	331 (0.97)	148 (0.53)	26 (0.24)	505 (0.69)
Depression	186 (0.55)	121 (0.43)	24 (0.22)	331 (0.45)
Schizophrenia	185 (0.54)	108 (0.38)	14 (0.13)	307 (0.42)
Atrial fibrillation	1,415 (4.17)	1,625 (5.77)	816 (7.44)	3,856 (5.27)

Complications of epilepsy in the elderly patients admitted all over Thailand during 9 year study period from 2004-2012

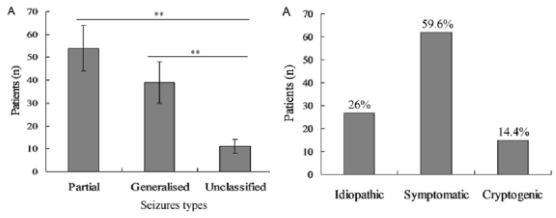
Complications	Age admission (year)			total
	60-<70	70-<80	80+	Count (%)
	Count (%)	Count (%)	Count (%)	
Sepsis	1,084 (3.19)	1,256 (4.46)	620 (5.65)	2,960 (4.05)
Pneumonia	1,743 (5.13)	2,029 (7.20)	1,022 (9.32)	4,794 (6.56)
Pressure sore	689 (2.03)	878 (3.12)	433 (3.95)	2,000 (2.74)
UTI	1,564 (4.61)	1,735 (6.16)	870 (7.93)	4,169 (5.70)
Shock	656 (1.93)	717 (2.54)	359 (3.27)	1,732 (2.37)

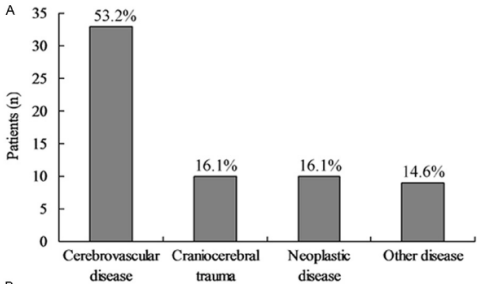


Int J Clin Exp Med 2015;8(2):2399-2404
www.ijcem.com /ISSN:1940-5901/IJCEM0002261

Original Article

Evaluation of clinical features of elderly epilepsy in China





Incidence rates of adult SE in elderly patients admitted all over Thailand during the 9 year study period from 2004 to 2012.

Years	Status epilepticus	Population	Rate /100,000 populations
2004	113	6,161,172	1.83
2005	166	6,335,988	2.62
2006	174	6,533,470	2.66
2007	241	6,705,061	3.59
2008	356	6,904,598	5.16
2009	413	7,176,819	5.75
2010	556	7,493,227	7.42
2011	590	7,811,450	7.55
2012	717	8,170,909	8.78
Total		3,326	

Co-morbid conditions of status epilepticus in elderly patients admitted all over Thailand during 9 year study period from 2004-2012

Co-morbid conditions	Numbers (%)
Hypertension	1,072 (32.2)
Diabetes mellitus	543 (16.3)
Previous stroke	423 (12.7)
Chronic renal failure	219 (6.6)
Traumatic brain injury	45 (1.4)
Cirrhosis	43 (1.3)
CNS infection	38 (1.1)
Schizophrenia	24 (0.7)
Brain tumor	21 (0.6)
Psychosis	12 (0.4)
Depressive	8 (0.2)

Factor affecting discharge status of SE in elderly patients

Variables	Discharge Status		Total n (%)	Adjusted odds ratios (95% CI)	p-value
	Good n (%)	Poor n (%)			
Age group					<0.001
60-70 years	1,016 (45.9)	404 (36.4)	1,420 (42.7)		
80. years	863 (39.0)	464 (41.8)	1,327 (39.9)	1.24 (1.03, 1.49)	
> 80 years	336 (15.2)	243 (21.9)	579 (17.4)	1.67 (1.33, 2.10)	
Gender					<0.001
Male	1,379 (62.3)	578 (52.0)	1,957 (58.8)		
Female	836 (37.7)	533 (48.0)	1,369 (41.2)	1.53 (1.29, 1.80)	
Co-morbid conditions					
Chronic renal failure	111 (5.0)	108 (9.7)	219 (6.6)	1.92 (1.40, 2.64)	<0.001
Traumatic brain injury	27 (1.2)	18 (1.6)	45 (1.4)	1.53 (0.75, 3.11)	0.432
CNS infection	18 (0.8)	20 (1.8)	38 (1.1)	2.02 (1.00, 4.07)	0.019
Complications					
Respiratory failure	884 (39.9)	672 (60.5)	1,556 (46.8)	2.41 (1.93, 3.00)	<0.001
Pneumonia	310 (14.0)	259 (23.3)	569 (17.1)	1.40 (1.00, 1.97)	<0.001
Septicemia	109 (4.9)	278 (25.0)	387 (11.6)	5.90 (4.23, 8.23)	<0.001
Shock	24 (1.1)	49 (4.4)	73 (2.2)	4.16 (2.26, 7.65)	<0.001
Procedures					
Foley's catheter	100 (4.5)	70 (6.3)	170 (5.1)	0.98 (0.67, 1.43)	0.034
CPR	9 (0.4)	83 (7.5)	92 (2.8)	16.26 (7.82, 33.81)	<0.001

Epilepsy & Behavior 36 (2014) 18-21

Electroencephalography results. Epileptiform activities found in older patients with delirium with continuous EEG and routine EEG.

	Continuous EEG N = 32	20 minutes routine EEG N = 32
Epileptiform activities (percent of patients)	**44%**	**22%**
NCSE	**28% (n = 9)**	**6% (n = 2)**
GPEDs	16% (5)	6% (2)
Mean frequency Hz [range]	1.6 [1–3]	3 [2–4]
3-Hz SW	3% (1)	–
PLEDS+	3% (1)	–
BI-PLEDS+	3% (1)	–
Continuous multifocal spikes	3% (1)	
IEDs	16% (n = 5)	**16% (n = 5)**

Contents lists available at SciVerse ScienceDirect

Seizure

journal homepage: www.elsevier.com/locate/yseiz

Short communication

Risk factors of recurrent seizure, co-morbidities, and mortality in new onset seizure in elderly

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- 278 pts
- PHT 57.6%, VAL 19.4%, LEV 7.9%, CBZ 7.2%, TPM 5%,PB 2.9%

Risk factors of recurrent seizure in study patients.

Variable	Odd ratio (95% confidence interval)			
	Univariate analysis	*P*-value	Multivariate analysis	*P*-value
Age at onset (years); n (%)	1.02 (0.99, 1.05)	0.211	-	-
Sex (F:M); n (%)	1.27 (0.78, 2.06)	0.343	-	-
Duration of seizure before accurate diagnosis (months); n (%)	0.99 (0.98, 1.00)	0.278	-	-
Etiology; n (%)		<0.001		<0.001
Acute symptomatic				
Remote symptomatic	0.45 (0.24, 0.83)		0.41 (0.21, 0.8)	
Progressive symptomatic	13.65 (5.04, 36.99)		11.15 (3.99, 31.09)	
Unknown	0.39 (0.15, 1.03)		0.36 (0.13, 1.01)	
Electroencephalogram; n (%)		<0.001		<0.001
Normal				
Non-specific abnormality	1.21 (0.66, 2.24)		1.24 (0.62, 2.48)	
Epileptiform discharge	6.48 (3.27, 12.83)		5.72 (2.65, 12.37)	
Status epilepticus at first; n (%) presentation	2.62 (1.45, 4.71)	0.001	-	-

Characteristics of elderly people

RAMPS

- Reduced body reserve
- Atypical presentation
- Multiple pathology
- Polypharmacy
- Social adversity

Pharmacokinetic Changes

Pharmacokinetic changes in the elderly

Lean body mass ↓
Total body water mass ↓
Proportion of fat ↓

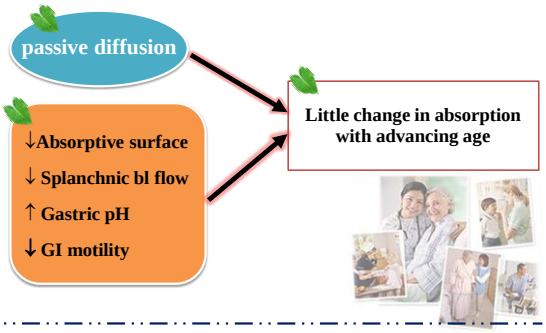
↓

Volume distribution of hydrophilic drugs and lipophilic drugs ↓

↓

Serum drug concentrations ↑

Absorption



Distribution

Variable	Young adult (20-30 yrs)	Older adults (60- 80 yrs)
Body water (% of BW)	61	53
Lean body mass (% of BW)	19	12
Body fat (% of BW)	26-33 (W) 18-20(M)	38-45 36-38
Serum albumin (g/ dl)	4.7	3.8

Metabolism

- ✓ **Clinical meaningful**
- ✓ **Increase distribution → fat soluble drug**
  → delay elimination → prolong duration
- ✓ **Especially important for single dose on intermittent basis (hypnotics & analgesics)**
  eg. Diazepam → ↑Vd ~ 2X → $T_{1/2}$ 24 hrs→ 90 hrs

Pharmacokinetic changes in the elderly

- Decreased albumin level leads to increased free fraction of drugs in the body.
- Measurement of total serum drug concentration may not reflect the true unbound drug level.
- Reduce hepatic metabolism (evidence is still unclear) and reduce renal excretion with reduction of creatinine clearance

Issues in treatment of epilepsy in the elderly

- Changes in pharmacokinetics of AEDs in the elderly
- Side effects of the AEDs esp. cognitive side effects
- Osteoporosis
- Drug interaction

Polypharmacy in elderly with AED

- Antidepressant 18.9%
- Antipsychotic 12.7%
- Benzodiazepine 22.4%
- Thyroid supplement 14.0%
- Antacid 8.0%
- Calcium channel blocker 6.9%
- Warfarin 5.9%

These drugs can provoke an acute state of confusion in elderly people

Table 1 These drugs can provoke an acute state of confusion in elderly people

Drug class
Adrenocortical steroid
Analgesic (morphine and derivate)
Antiarrhythmic (lidocaine)
Antidepressant
Antihypertensive (high risk: central effective substances; low risk: α- and β-receptorblocker mean, calcium antagonists and ACE inhibitors)
Anti-Parkinson agent (for anticholineric > dopamineric)
Benzodiazepine
Digitalis
H_2-antagonist (cimetidine)
Neuroleptic
Non-steroid antiphlogistic drug
Theophylline
γ-Hydroxybutyric acid (low dose: euphoretic, moderate dose: confusion, high dose: coma)

Effect of age on therapeutic ranges.
The elderly typically have a narrower therapeutic window, the range between the lowest effective concentration and the maximal tolerated concentration.

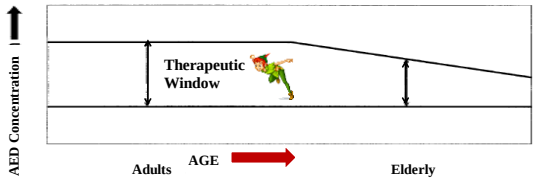


Figure 2. Effect of age on therapeutic ranges. The elderly typically have a narrower therapeutic window, the range between the lowest effective concentration and the maximal tolerated concentration. Adapted from reference 25.

Desirable features of an AED for use in the elderly

No interactions with other medications
No interactions with other AEDs
Can be introduced at therapeutic doses
No metabolism
No protein binding
Once-or twice-daily dosing
Laboratory monitoring not necessary
Excellent safety record
Good side-effect profile
High therapeutic index
Little effect on cognitive function
Psychoactive benefits

Average changes in apparent oral clearance of older and newer antiepileptic drugs in elderly paients

Antiepileptic drug	Decrease in drug clearance in elderly people compared with young adults (%)
Carbamazepine	25-40
Felbamate	10-20
Galbapentin	~30-50
Lacosamide	~10-35
Lamotrigine	~35
Levetiracetam	~20-40
Oxcarbazepine	~25-35
Phenobarbital	~20
Phenytoin	~25
Tiagabine	~30
Topiramate	~20
Valproic acid	~40
Vigabatrin	~50-85

Caution of SE of AEDs in elderly

AEDs	Special precautions
Phenobarbital	Drowsiness, cognitive dysfunction May reduce effects of other drugs (enzyme inducer)
Phenytoin	Reduced metabolism and clearance Reduced protein binding → increased free fraction Increase incidence of adverse effects PHT level may be increased by amiodarone, cimetidine, isoniazid, trazodone May reduce effects of other drugs (enzyme inducer)
Carbamazepine	Increase incidence of adverse effects May reduce effects of other drugs (enzyme inducer) Hyponatremia
Sodium valproate	Drowsiness, cognitive dysfunction Thrombocytopenia
Oxcarbazepine	Increase incidence of adverse effects Hyponatremia
Topiramate	Cognitive side effects at higher dosage (can be avoided by slow titration)

Drug	Major route of elimination	Pharmacokinetic concerns	Adverse effects
Older medications			
Phenytoin	Hepatic	High protein binding Nonlinear kinetics Hepatic enzyme inducer Water insoluble	Rash, ataxia, diplopia, hirsutism, gingival hyperplasia, hepatotoxicity, peripheral neuropathy, blood dyscrasias
Carbamazepine	Hepatic	High protein binding Hepatic enzyme inducer Water insoluble	Tremor, ataxia, rash, blurred vision, Stevens Johnson syndrome (SJS), hyponatremia, arrhythmias, blood dyscrasias
Valproate	Hepatic	High protein binding Hepatic enzyme inhibitor	Hepatic failure, weight gain, tremor, hyperammonemia, encephalopathy, GI disturbances, thrombocytopenia, parkinsonism
Phenobarbital	Hepatic	High protein binding Hepatic enzyme inducer	Cognitive dysfunction, sedation, depression, ataxia, nystagmus

Drug	Major route of elimination	Pharmacokinetic concerns	Adverse effects
Oxcarbazepine	Hepatic	Partial inducer	Hyponatremia (more than carbamazepine) ataxia, confusion, tremor
Topiramate	Renal/hepatic	Partial inducer May decrease clearance of memantine	Dizziness, confusion, nephrolithiasis, weight loss, glaucoma, paresthesias, cognitive dysfunction, hyperthermia
Gabapentin	Renal	–	Weight gain, peripheral edema, somnolence
Lamotrigine	Hepatic	Metabolism significantly inhibited by valproate	Rash, SJS, tics, insomnia, confusion, headache
Levetiracetam	Renal/hepatic	–	Tremor, somnolence, agitation, psychosis, insomnia
Zonisamide	Hepatic	May decrease clearance of memantine	Somnolence, dizziness, weight loss, nephrolithiasis
Lacosamide	Renal	–	Dizziness, diplopia
Tiagabine	Hepatic	–	Rash, dizziness, somnolence
Eslicarbazepine	Hepatic/renal	Partial inducer May decrease levels of statins and warfarin	Dizziness, diplopia, somnolence, nausea
Perampanel	Hepatic	Weak inducer	Serious psychiatric effects like aggression, psychosis and irritability, dizziness, somnolence

AEDs and osteoporosis

AEDs and osteoporosis

- The induction of the enzyme CYP3A4 causes decreased vitamin D level.
- The lower levels of vitamin D cause a secondary hyperparathyroidism resulting in decreased levels of calcium, which are replenished from bone stores, leading to osteopenia and osteoporosis.

Effect of AEDs on Bone Metabolism

Drug	BMD	$25(OH)D_3$	Ca/P	PTH	Bone turnover marker
Classic antiepileptics					
Benzodiazepine	↓	↓	↔	↔	↑bALP, ↑OC, ↑ICTP, ↑NTX
Carbamazepine	↓	↓	↔	↑	↑bALP, ↑OC, ↑ICTP, ↑NTX
Phenytoin	↓	↓	↓	↑	↑bALP, ↑NTX
Phenobarbital	↓	↓	↔		↑bALP, ↑ICTP
Valproic acid	↓	↔	↔	↔	↑ALP, ↑OC
Newer antiepileptics					
Gabapentin	↓				
Lamotrigine	↔	↔	↔	?	
Levetiracetam	↔	↔	↔		?
Oxacarbazepine	↓	↓	↔	↑	↑bALP

Bone formation markers:
BMD, bone mineral density; $25(OH)D_3$, 25-hydroxycholecalciferol, PTH, parathyroid hormone.
ALP, alkaline phosphatase; bALP, bone-specific alkaline phosphatase; OC, osteocalcin.
Bone resorption markers:
ICTP, C-terminal cross-linked type I collagen telopeptide; NTX, N-terminal cross-linked type I collagen telopeptide.

Management of osteoporosis in elderly with AED

Total daily calcium intake of 1000–1500 mg/day (nutrition and supplements)
Adequate sunlight exposure, possibly vitamin D3 supplementation
  Treatment with non-enzyme-inducing antiepileptics: 1000–2000 IE/day
  Treatment with enzyme-inducing antiepileptics: 2000–4000 IU/day
  Higher vitamin D doses usually required in osteomalacia
  Annual monitoring of 25OH vitamin D levels recommended
Balanced diet with adequate protein intake
Regular physical activity, avoidance of immobility
Reduction of fall risk by
  Strength training, coordination training, gait and fall training
  Monitoring of the home situation (tripping hazards in the home)
  Vision correction
  Monitoring the use and indication of sedating medications and orthostatic drugs
  Avoidance of risk factors (smoking; excessive alcohol intake; use of medications with an adverse effect on bone metabolism)
Possibly hormone replacement therapy, with due consideration of the benefit–risk relationship

Epilepsia, 54(3):551–563, 2013
doi: 10.1111/epi.12074

SPECIAL REPORT

Updated ILAE evidence review of antiepileptic drug efficacy and effectiveness as initial monotherapy for epileptic seizures and syndromes

***Tracy Glauser, †Elinor Ben-Menachem, ‡Blaise Bourgeois, §Avital Cnaan, ¶Carlos Guerreiro, #Reetta Kälviäinen, **Richard Mattson, ††Jacqueline A. French, ‡‡Emilio Perucca, §§Torbjorn Tomson for the ILAE Subcommission on AED Guidelines**

- Review of all 64 **randomized controlled trials** from 1940 – 2012
- "For patients with newly diagnosed or untreated epilepsy, which AEDs have the best evidence for long-term efficacy (=seizure control) or effectiveness (=retention) as initial monotherapy?"
- Failed superiority studies were reanalysed to evaluate non-inferiority
- Not meant to be a treatment guideline since other potential parameters in choosing an AED (e. g. interactions, specific side effects, cost) not considered

ILAE report on monotherapy 2013

Table4 .Summary of studies and level of evidence for each seizure type and epileptic syndrome

SZ type &epileptic syndrome effectiveness	class I study	Class II study	Class III study	level of efficacy and evidence (in alphabetical order)
Adult with partial onset seizure	4	1	34	level A : CBZ,LEV,PHT,ZNS B : VPA C : GBP,LTG,OXC,PB,,TPM, VGB D : CZP,PRM
Elderly adult with partial onset seizure	1	1	3	level A : GBP, LTG B : none C : CBZ D : TPM,VPA
Adult with generalized onset tonic- clonic seizure	0	0	27	level A : none B : none C: CBZ,LTG,OXC, PB, PHT, TPM, VPA D : GBP,LEV,VGB

Abstract ▾ Send to: ▾

Neurology. 2005 Jun 14;64(11):1868-73.

New onset geriatric epilepsy: a randomized study of gabapentin, lamotrigine, and carbamazepine.

Rowan AJ[1], Ramsay RE, Collins JF, Pryor F, Boardman KD, Uthman BM, Spitz M, Frederick T, Towne A, Carter GS, Marks W, Felicetta J, Tomiyanovich ML; VA Cooperative Study 428 Group.

Author information

Abstract

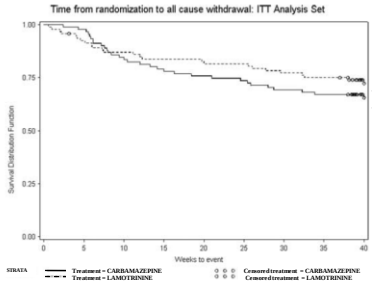
OBJECTIVE: To determine the relative tolerability and efficacy of two newer antiepileptic drugs, lamotrigine (LTG) and gabapentin (GBP), as compared to carbamazepine (CBZ) in older patients with epilepsy.

METHODS: This was an 18-center, randomized, double-blind, double dummy, parallel study of 593 elderly subjects with newly diagnosed seizures. Patients were randomly assigned to one of three treatment groups: GBP 1,500 mg/day, LTG 150 mg/day, CBZ 600 mg/day. The primary outcome measure was retention in trial for 12 months.

RESULTS: Mean age was 72 years. The most common etiology was cerebral infarction. Patients had multiple medical conditions and took an average of seven comedications. Mean plasma levels at 6 weeks were as follows: GBP 8.67 +/- 4.83 microg/mL, LTG 2.87 +/- 1.60 microg/mL, CBZ 6.79 +/- 2.92 microg/mL. They remained stable throughout the trial. Early terminations: LTG 44.2%, GBP 51%, CBZ 64.5% (p = 0.0002). Significant paired comparisons: LTG vs CBZ: p < 0.0001; GBP vs CBZ: p = 0.008. Terminations for adverse events: LTG 12.1%, GBP 21.6%, CBZ 31% (p = 0.001). Significant paired comparisons: LTG vs CBZ: p < 0.0001; LTG vs GBP: p = 0.015. There were no significant differences in seizure free rate at 12 months.

CONCLUSIONS: The main limiting factor in patient retention was adverse drug reactions. Patients taking lamotrigine (LTG) or gabapentin (GBP) did better than those taking carbamazepine. Seizure control was similar among groups. LTG and GBP should be considered as initial therapy for older patients with newly diagnosed seizures.

An International Multicenter Randomized Double-Blind Controlled Trial of Lamotrigine and Sustained-Release Carbamazepine in the Treatment of Newly Diagnosed Epilepsy in the Elderly



- **Efficacy: LTG=CBZ**
- **Tolerability: LTG>CBZ**

A randomized, double-blind comparison of antiepileptic drug treatment in the elderly with new-onset focal epilepsy

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Table 1. Patient characteristics

	Overall (n = 359)	Carbamazepine (n = 120)	Lamotrigine (n = 117)	Levetiracetam (n = 122)	p-Value[a]
Age, years	71.4 ± 7.2	71.7 ± 6.7	70.7 ± 7.4	71.8 ± 7.5	
Median (Q1, Q3)	71.0 (66.0, 76.0)	71.0 (66.5, 77.0)	70.0 (65.0, 76.0)	71.0 (66.0, 76.0)	0.450
Female sex, no. (%)	144 (40.1)	55 (45.8)	48 (41.0)	41 (33.6)	0.148
Body mass index, kg/m^2	26.7 ± 3.9	27.0 ± 4.2	26.5 ± 4.0	26.7 ± 3.5	0.584
N seizures at randomization					
Median	2.0	2.0	2.0	2.0	0.177
N seizures, no. (%)					
1[b]	151 (42.1)	55 (45.8)	45 (38.5)	51 (41.8)	–
2	91 (25.3)	26 (21.7)	37 (31.6)	28 (23.0)	–
3-5	71 (19.8)	18 (15.0)	21 (17.9)	32 (26.2)	–
>5	38 (10.6)	18 (15.0)	11 (9.4)	9 (7.4)	–

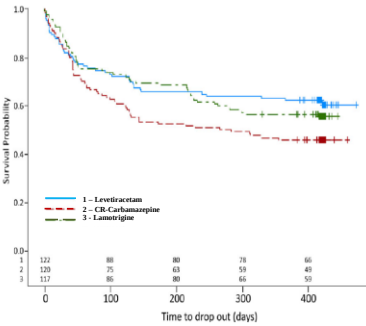
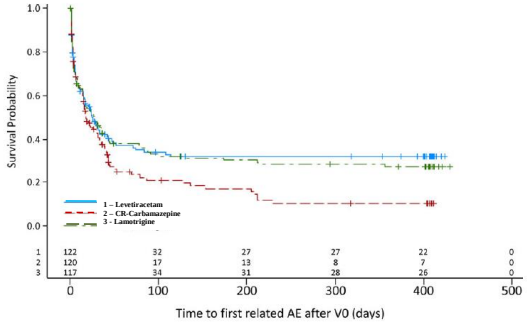


Figure 2.
Kaplan-Meier plot of time to discontinuation (intent-to-treat population). Censored values are indicated by crosses.
Epilepsia © ILAE



Safety and tolerability of zonisamide in elderly patients with epilepsy

Trinka E, Giorgi L, Patten A, Segieth J. Safety and tolerability of zonisamide in elderly patients with epilepsy.
Acta Neurol Scand 2013: 128: 422–428.

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Seizure 29 (2015) 41–45

Contents lists available at ScienceDirect

Seizure

journal homepage: www.elsevier.com/locate/yseiz

Cognitive outcomes of temporal lobe epilepsy surgery in older patients

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Post-operative change in memory and naming for the three TLE age cohorts expressed as the % of individuals.

	Improved	Declined
Verbal memory		
18–30	16%	**25%**
31–49	17%	**28%**
50+	12%	**44%****
Visual memory		
18–30	13%	14%
31–49	13%	16%
50+	9%	21%
Memory rating		
18–30	**25%**	28%
31–49	**28%**	30%
50+	**5%***	46%
Naming		
18–30	12%	**5%**
31–49	16%	**10%**
50+	6%	**33%****

Bold text denotes clinical significance: *$p < 0.05$; **$p < 0.01$.

สรุป

- โรคลมชักในผู้สูงอายุพบมากขึ้น
- การวินิจฉัยต้องพิจารณาอย่างรอบครอบ
- การเลือกใช้ยากันชักต้องพิจารณาข้อเสียของยาเป็นพิเศษ
- ต้องระมัดระวังเกี่ยวกับการล้ม ความจำ
- ยาที่ใช้ร่วมกันต้องระมัดระวังอย่างยิ่ง
- ยาที่เหมาะสม คือ CBZ, VPA, GBP, TPM, LTG, LEV, ZNS