

# 191 Anticonvulsants

## REFERENCES

1. Bronstein AC, Spyker DA, Cantilena LR Jr, et al: American Association of Poison Control Centers: 2008 Annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 26th annual report. *Clin Toxicol (Phila)* 47: 911, 2009.
2. Gilad R, Izkovitz N, Dabby R, et al: Treatment of status epilepticus and acute repetitive seizures with i.v. valproic acid vs. phenytoin. *Acta Neurol Scand* 118: 296, 2008.
3. Eriksson K, Keränen T, Kälviäinen R: Fosphenytoin. *Expert Opin Drug Metab Toxicol* 5: 695, 2009.
4. Rho JM, Sankar R: The pharmacologic basis of antiepileptic drug action. *Epilepsia* 40: 1471, 1999.
5. Wyte CD, Berk WA: Severe oral phenytoin overdose does not cause cardiovascular morbidity. *Ann Emerg Med* 20: 508, 1991.
6. Mellick LB, Morgan JA, Mellick GA: Presentations of acute phenytoin overdose. *Am J Emerg Med* 7: 61, 1989.
7. Gross DR, Kitzman JV, Adams HR: Cardiovascular effects of intravenous administration of propylene glycol in calves. *Am J Vet Res* 40: 783, 1979.
8. Louis S, Kuth H: The cardiocirculatory changes caused by intravenous Dilantin and its solvent. *Am Heart J* 74: 523, 1967.
9. Gerber N, Maya DC, Donn KH, et al: Safety, tolerance, and pharmacokinetics of IV doses of the phosphate ester of hydroxymethyl diphenylhydantoin, a new prodrug of phenytoin. *J Clin Pharmacol* 28: 1023, 1988.
10. Leppik IE, Boucher R, Wilder BJ, et al: Phenytoin prodrug, pre-clinical and clinical studies. *Epilepsia* 30(suppl 2): S22, 1989.
11. Ahn JE, Cloyd JC, Brundage RC, et al: Phenytoin half-life and clearance during maintenance therapy in adults and elderly patients with epilepsy. *Neurology* 71: 38, 2008.
12. Osorio I, Burnstein TH, Pemler B: Phenytoin induced seizures: a paradoxical effect at toxic concentrations in epileptic patients. *Epilepsia* 30: 230, 1989.
13. Chokshi R, Openshaw J, Mehta NN, Mohler E: Purple glove syndrome following intravenous phenytoin administration. *Vasc Med* 12: 29, 2007.
14. Position statement and practice guidelines on the use of multi-dose activated charcoal in the treatment of acute poisoning. American Academy of Clinical Toxicology; European Association of Poisons Centres and Clinical Toxicologists. *J Toxicol Clin Toxicol* 37: 731, 1999.
15. Miller MA, Crystal CS, Patel MM: Hemodialysis and hemoperfusion in a patient with an isolated phenytoin overdose. *Am J Emerg Med* 24: 748, 2006.
16. Yoshimura R, Yanagihara N, Terao T, et al: Inhibition by carbamazepine of various ion channels: mediated catecholamine secretion in cultured bovine adrenal medullary cells. *Nauwyn Schmidelbergs Arch Pharmacol* 352: 297, 1995.
17. Winnicka RI, Topaciński B, Szymczak WM, et al: Carbamazepine poisoning: elimination kinetics and quantitative relationship with carbamazepine 10,11-epoxide. *J Toxicol Clin Toxicol* 40: 759, 2002.
18. Lifshitz M, Gavrilov V, Sofer S: Signs and symptoms of carbamazepine overdose in young children. *Pediatr Emerg Care* 16: 26, 2000.
19. Stremski ES, Brady WB, Prasad K, Hennes HA: Pediatric carbamazepine intoxication. *Ann Emerg Med* 25: 624, 1995.
20. Hojer J, Malmlund HO, Berg A: Clinical features in 28 consecutive cases of laboratory confirmed massive poisoning with carbamazepine alone. *J Toxicol Clin Toxicol* 31: 449, 1993.
21. Matos ME, Burns MM, Shannon MW: False-positive tricyclic antidepressant drug screen results leading to the diagnosis of carbamazepine intoxication. *Pediatrics* 105: E66, 2000.
22. Wason S, Baker RC, Carolan P, et al: Carbamazepine overdose: the effects of multiple-dose activated charcoal. *J Toxicol Clin Toxicol* 30: 39, 1992.
23. Tapolyai M, Campbell M, Dailey K, Udvari-Nagy S: Hemodialysis is as effective as hemoperfusion for drug removal in carbamazepine poisoning. *Nephron* 90: 213, 2002.
24. Pilapil M, Petersen J: Efficacy of hemodialysis and charcoal hemoperfusion in carbamazepine overdose. *Clin Toxicol (Phila)* 46: 342, 2008.
25. Yıldız TS, Toprak DG, Arısoy ES, et al: Continuous venovenous hemodiafiltration to treat controlled-release carbamazepine overdose in a pediatric patient. *Paediatr Anaesth* 16: 1176, 2006.
26. Loscher W: Effects of the antiepileptic drug valproate on metabolism and function of inhibitory and excitatory amino acids in the brain. *Neurochem Res* 18: 485, 1993.
27. Albus H, Williamson R: Electrophysiologic analysis of the actions of valproate on pyramidal neurons in the rat hippocampal slice. *Epilepsia* 39: 124, 1998.
28. Graudins A, Aaron CK: Delayed peak serum valproic acid in massive divalproex overdose and treatment with charcoal hemoperfusion. *J Toxicol Clin Toxicol* 34: 335, 1996.
29. Andersen GO, Ritland S: Life threatening intoxication with sodium valproate. *J Toxicol Clin Toxicol* 33: 279, 1995.
30. Spiller HA, Krenzelok EP, Klein-Schwartz W, et al: Multicenter case series of valproic acid ingestion: serum concentrations and toxicity. *J Toxicol Clin Toxicol* 38: 755, 2000.
31. Eyer F, Felgenhauer N, Gempel K, et al: Acute valproate poisoning: pharmacokinetics, alteration in fatty acid metabolism, and changes during therapy. *J Clin Psychopharmacol* 25: 376, 2005.
32. Chicharro AV, de Marinis AJ, Kanner AM: The measurement of ammonia blood levels in patients taking valproic acid: looking for problems where they do not exist? *Epilepsy Behav* 11: 361, 2007.
33. Bryant AE, Dreifuss FE: Valproic acid hepatic fatalities. III. U.S. experience since 1986. *Neurology* 46: 465, 1996.
34. Koenig SA, Buesing D, Longin E, et al: Valproic acid-induced hepatopathy: nine new fatalities in Germany from 1994 to 2003. *Epilepsia* 47: 2027, 2006.
35. Björnsson E, Olsson R: Suspected drug-induced liver fatalities reported to the WHO database. *Dig Liver Dis* 38: 33, 2006.
36. Ohtani Y, Endo F, Matsuda I: Carnitine deficiency and hyperammonemia associated with valproic acid therapy. *J Pediatr* 101: 782, 1982.
37. Alberto G, Erickson T, Popiel R, et al: Central nervous system manifestations of valproic acid overdose responsive to naloxone. *Ann Emerg Med* 18: 889, 1989.
38. Montero FJ: Naloxone in the reversal of coma induced by sodium valproate. *Ann Emerg Med* 33: 357, 1999.
39. Lheureux PE, Hantson P: Carnitine in the treatment of valproic acid-induced toxicity. *Clin Toxicol (Phila)* 47: 101, 2009.
40. Murakami K, Sugimoto T, Woo M, et al: Effect of L-carnitine supplementation on acute valproate intoxication. *Epilepsia* 37: 687, 1996.
41. Kane SL, Constantiner M, Staubus AE, et al: High-flux hemodialysis without hemoperfusion is effective in acute valproic acid overdose. *Ann Pharmacother* 34: 1146, 2000.
42. Minville V, Roche Tissot C, Samii K: [Haemodialysis, L-carnitine therapy and valproic acid overdose]. *Ann Fr Anesth Reanim* 23: 357, 2004.
43. Khan E, Huggan P, Celi L, et al: Sustained low-efficiency dialysis with filtration (SLEDD-f) in the management of acute sodium valproate intoxication. *Hemodial Int* 12: 211, 2008.
44. Thanacoody RH: Extracorporeal elimination in acute valproic acid poisoning. *Clin Toxicol (Phila)* 47: 609, 2009.
45. Wade JF, Dang CV, Nelson L, Wasserberger J: Emergent complications of the newer anticonvulsants. *J Emerg Med* 38: 23, 2010.
46. Nagel TR, Schunk JE: Felbamate overdose: a case report and discussion of a new anti-epileptic drug. *Pediatr Emerg Care* 11: 369, 1995.
47. Rengstorff DS, Milstone AP, Seger DL, Meredith TJ: Felbamate overdose complicated by massive crystalluria and acute renal failure. *J Toxicol Clin Toxicol* 38: 667, 2000.
48. Meier KH, Olson KR, Olson JL: Acute felbamate overdose with crystalluria. *Clin Toxicol (Phila)* 43: 189, 2005.
49. Klein-Schwartz W, Shepherd JG, Gorman S, Dahl B: Characterization of gabapentin overdose using a poison center case series. *J Toxicol Clin Toxicol* 41: 11, 2003.
50. Verma A, St. Clair EW, Radtke RA: A case of sustained massive gabapentin overdose without serious side effects. *Ther Drug Monit* 21: 615, 1999.
51. Jones H, Aguila E, Farber HW: Gabapentin toxicity requiring intubation in a patient receiving long-term hemodialysis. *Ann Intern Med* 137: 74, 2002.
52. Kellinghaus C: Lacosamide as treatment for partial epilepsy: mechanisms of action, pharmacology, effects, and safety. *Ther Clin Risk Manag* 5: 757, 2009.
53. Lofton AL, Klein-Schwartz W: Evaluation of lamotrigine toxicity reported to poison centers. *Ann Pharmacother* 38: 1811, 2004.
54. Sbei M, Campellone JV: Stupor from lamotrigine toxicity. *Epilepsia* 42: 1082, 2001.
55. O'Donnell J, Bateman DN: Lamotrigine overdose in an adult. *J Toxicol Clin Toxicol* 38: 659, 2000.
56. Daana M, Nevo Y, Tenenbaum A, et al: Lamotrigine overdose in a child. *J Child Neurol* 22: 642, 2007.
57. Reimers A, Reinhold G: Acute lamotrigine overdose in an adolescent. *Ther Drug Monit* 29: 669, 2007.
58. Schwartz MD, Geller RJ: Seizures and altered mental status after lamotrigine overdose. *Ther Drug Monit* 29: 843, 2007.
59. Venkatraman N, O'Neil D, Hall AP: Life-threatening overdose with lamotrigine, citalopram, and chlorpheniramine. *J Postgrad Med* 54: 316, 2008.
60. Dinnerstein E, Jobst BC, Williamson PD: Lamotrigine intoxication provoking status epilepticus in an adult with localization-related epilepsy. *Arch Neurol* 64: 1344, 2007.
61. Herold TJ: Lamotrigine as a possible cause of QRS prolongation in a patient with known seizure disorder. *CJEM* 8: 361, 2006.
62. Nwogbe B, Ferri J, Smith H, et al: Significant lamotrigine overdose associated with acute pancreatitis. *J R Soc Med* 102: 118, 2009.
63. Sirianni AJ, Osterhoudt KC, Calello DP, et al: Use of lipid emulsion in the resuscitation of a patient with prolonged cardiovascular collapse after overdose of bupropion and lamotrigine. *Ann Emerg Med* 51: 412, 2008.
64. Harden C: Safety profile of levetiracetam. *Epilepsia* 42(suppl 4): 36, 2001.
65. Barrueto F Jr, Williams K, Howland MA, et al: A case of levetiracetam (Keppra) poisoning with clinical and toxicokinetic data. *J Toxicol Clin Toxicol* 40: 881, 2002.
66. Awaad Y: Accidental overdosage of levetiracetam in two children caused no side effects. *Epilepsy Behav* 11: 247, 2007.
67. Kalis MM, Huff NA: Oxcarbazepine, an antiepileptic agent. *Clin Ther* 23: 680, 2001.
68. Raju M, Azzoni A: Oxcarbazepine, risperidone and atenolol overdose with benign outcome. *Int J Neuropsychopharmacol* 6: 309, 2003.
69. Barker MJ, Benitez JG, Ternullo S, Juhal GA: Acute oxcarbazepine and atomoxetine overdose with quetiapine. *Vet Hum Toxicol* 46: 130, 2004.
70. van Opstal JM, Janknegt R, Cilissen J, et al: Severe overdosage with the antiepileptic drug oxcarbazepine. *Br J Clin Pharmacol* 58: 329, 2004.
71. Furlan M, Franceschi L, Poz D, et al: Acute oxcarbazepine, benazepril, and hydrochlorothiazide overdose with alcohol. *Ther Drug Monit* 28: 267, 2006.
72. Braga AJ, Chidley K: Self-poisoning with lamotrigine and pregabalin. *Anaesthesia* 62: 524, 2007.
73. Spiller HA, Bratcher R, Griffith JR: Pregabalin overdose with benign outcome. *Clin Toxicol (Phila)* 46: 917, 2008.
74. Yoo L, Matalon D, Hoffman RS, Goldfarb DS: Treatment of pregabalin toxicity by hemodialysis in a patient with kidney failure. *Am J Kidney Dis* 54(6): 1127, 2009. *Epib Pub June 3 2009.*

## 2 References

75. Perucca E, Cloyd J, Critchley D, Fuseau E: Rufinamide: clinical pharmacokinetics and concentration-response relationships in patients with epilepsy. *Epilepsia* 49: 1123, 2008.
76. Spiller HA, Winter ML, Ryan M, et al: Retrospective evaluation of tiagabine overdose. *Clin Toxicol (Phila)* 43: 855, 2005.
77. Cantrell FL, Ritter M, Himes E: Intentional overdose with tiagabine: an unusual clinical presentation. *J Emerg Med* 27: 271, 2004.
78. Winiewski M, Sein Anand J, Chodorowski Z, Kosiska-Tomczyk H: [Tiagabine overdose—report of two cases]. *Przegl Lek* 64: 308, 2007.
79. Forbes RA, Kalra H, Hackett LP, Daly FF: Deliberate self-poisoning with tiagabine: an unusual toxicodrome. *Emerg Med Australas* 19: 556, 2007.
80. Ostrovskiy D, Spanaki MV, Morris GL: Tiagabine overdose can induce convulsive status epilepticus. *Epilepsia* 43: 773, 2002.
81. Fulton JA, Hoffman RS, Nelson LS: Tiagabine overdose: a case of status epilepticus in a non-epileptic patient. *Clin Toxicol (Phila)* 43: 869, 2005.
82. Kazzi ZN, Jones CC, Morgan BW: Seizures in a pediatric patient with a tiagabine overdose. *J Med Toxicol* 2: 160, 2006.
83. Jette N, Cappell J, VanPassel L, Akman CI: Tiagabine-induced nonconvulsive status epilepticus in an adolescent without epilepsy. *Neurology* 67: 1514, 2006.
84. Lofton AL, Klein-Schwartz W: Evaluation of toxicity of topiramate exposures reported to poison centers. *Hum Exp Toxicol* 24: 591, 2005.
85. Lin G, Lawrence R: Pediatric case report of topiramate toxicity. *Clin Toxicol (Phila)* 44: 67, 2006.
86. Winiewski M, ukasik-Gebocka M, Anand JS: Acute topiramate overdose—clinical manifestations. *Clin Toxicol (Phila)* 47: 317, 2009.
87. Anand JS, Chodorowski Z, Wisniewski M: Seizures induced by topiramate overdose. *Clin Toxicol (Phila)* 45: 197, 2007.
88. Fakhoury T, Murray L, Seger D, et al: Topiramate overdose: clinical and laboratory features. *Epilepsy Behav* 3: 185, 2002.
89. Groeper K, McCann ME: Topiramate and metabolic acidosis: a case series and review of the literature. *Paediatr Anaesth* 15: 167, 2005.
90. Mathews KD, Stark JE: Hyperchlloremic, normal anion-gap, metabolic acidosis due to topiramate. *Am J Health Syst Pharm* 65: 1430, 2008.
91. Shiber JR: Severe non-anion gap metabolic acidosis induced by topiramate: a case report. *J Emerg Med*. Epub February 18, 2009.
92. Oommen KJ, Mathews S: Zonisamide: a new antiepileptic drug. *Clin Neuropharmacol* 22: 192, 1999.
93. Sztajnkrzyc MD, Huang EE, Bond GR: Acute zonisamide overdose: a death revisited. *Vet Hum Toxicol* 45: 154, 2003.

## USEFUL WEB RESOURCES

American Association of Poison Control Centers)—<http://www.aapcc.org/DNN/>  
American Academy of Clinical Toxicology—<http://www.clintox.org/index.cfm>  
European Association of Poisons Centres and Clinical Toxicologists—<http://www.eapcct.org/>  
Asia Pacific Association of Medical Toxicology—<http://www.asiatox.org/>  
South Asian Clinical Toxicology Research Collaboration—<http://www.sactrc.org/>  
TOXBASE: The primary clinical toxicology database of the National Poisons Information Service (free access for UK National Health Service hospital departments and general practices, and National Health Service departments of public health and health protection agency units; available to hospital EDs in Ireland by contract; available to European poison centers whose staff are members of the European Association of Poisons Centres and Clinical Toxicologists; overseas users may be allowed access on payment of a yearly subscription, subject to the approval of the Health Protection Agency)—<http://www.toxbase.org/>