

Bilaga 1. Klassificering enligt den modifierade WHO-UMC skalan av bedömare SF och JH samt konsensus för de 126 initialt inkluderade artiklarna.

Artikelnr	SF	JH	Efter konsensus	46	6	6	6	90	2	3	3
1	3	3	3	47	2	2	2	91	2	2	2
2	2	1	2	48	3	3	3	92	4	3	4
3	3	2	2	49	6	6	6	93	5	5	5
4	3	3	3	50	6	6	6	94	1	3	3
5	2	2	2	51	5	5	5	95	1	2	2
6	5	5	5	52	3	3	3	96	2	2	2
7	3	3	3	53	2	2	2	97	2	2	2
8	3	3	3	54	4	2	3	98	2	2	2
9	3	3	3	55	3	2	3	99	6	6	6
10	3	3	3	56	3	2	3	100	2	2	2
11	3	3	3	57a	3	2	3	101	2	3	2
12	6	6	6	57b	3	3	3	102	3	3	3
13	3	3	3	58	2	2	2	103	5	5	5
14	5	5	5	59a	4	4	4	104	3	2	3
15	4	4	4	59b	4	4	4	105	3	3	3
16	4	3	4	60	5	5	5	106	5	5	5
17	3	3	3	61	1	1	1	107	5	5	5
18	2	3	2	62	3	3	3	108	5	5	5
19	5	5	5	63	3	3	3	109	3	3	3
20	3	3	3	64	3	4	4	110	5	5	5
21	1	2	2	65	2	2	2	111	6	6	6
22	2	2	2	66	2	3	3	112	2	2	2
23	3	3	3	67	2	2	2	113	3	3	3
24	6	6	6	68	3	3	3	114	5	5	5
25	6	6	6	69	6	6	6	115	1	3	2
26	6	6	6	70	3	2	3	116	5	5	5
27	2	2	2	71	1	1	1	117	2	3	2
28	2	3	3	72	6	6	6	118	3	3	3
29	5	5	5	73	5	5	5	119	3	2	3
30	3	3	3	74	3	3	3	120	5	5	5
31	3	3	3	75	2	3	3	121	2	2	2
32	1	2	1	76	2	2	2	122	2	2	2
33	2	2	2	77	3	3	3	123	3	3	3
34	2	2	2	78a	2	3	3	124	3	1	2
35	2	2	2	78b	2	3	3	125	6	6	6
36	3	3	3	79	5	5	5	126	6	6	6
37	4	4	4	80	1	2	2				
38	3	3	3	81	5	5	5				
39	2	3	3	82	5	5	5				
40	5	5	5	83	6	6	6				
41	5	5	5	84	2	2	2				
42	3	3	3	85	3	3	3				
43	3	3	3	86	6	6	6				
44	2	2	2	87	1	2	2				
45	2	2	2	88	5	5	5				
				89	3	3	3				

Bilaga 2. Sammanfattning av de 92 patientfallen där man rapporterat positiv effekt av lipidterapin.

Artikelnr (bland de initialt inkludera -de 126)	Författare, År [ref]	Förgiftningsmedel	Typ av läkemedel	Andra förgiftningsmedel	P.o.=1 parent=2	Klassificering		Patient: ålder/kön/vikt	Förgiftningssymtom	ILE-dos	Övriga läkemedel som gavs	Tid till effekt + vilken effekt	Log p medelvärde
						enligt modifierad WHO-UMC							
1	Admani B och medarbetare , 2010[81]	Bupivakain	Lokalanestetika	Lidokain	2	3		0,25/M/5,9 kg	Kramper, bradyarytmii, takyarytmii	Bolus: 1,5 ml/kg = 9 ml Infusion: 0,25 ml/kg/min	Midazolam, fenytoin, pentotal, diazepam, kortison	Hjärtsymtom, snabbt i regress, krampfri efter 4 tim	3,915
2	Agarwala R och medarbetare , 2012 [80]	TCA	TCA	TCA	1	2		42/M/?	Hjärtstopp, breddökat QRS >110 ms, blodtrycksfall, kramper	Bolus: 250 ml Infusion: 100 ml/h under 24 min Totalt: 2650 ml	Natriumbikarbonat	Promt effekt på QRS och blodtryck x 2.	?
3	Al-Alami A, 2011 [82]	Ropivakaine	Lokalanestetika		2	2		16/M/58 kg	Neurologiska symtom, takyarytmii	Bolus: 1,5 ml/kg = 87 ml Infusion: 0,25 ml/kg/min under 3 min (14,5 ml/h) Totalt: 130 ml	Midazolam	Snabb effekt på puls och neurologi.	3,49
4	Al-Duaiij N och medarbetare , 2009 [83]	Imipramin	TCA		1	3		52/K/?	Breddökat QRS >110 ms, takyarytmii, bradyarytmii, blodtrycksfall, neurologiska symtom inkl. kramper	Bolus: 100 ml + 100 ml Infusion: 0,25 ml/kg/min under 30 min	Natriumbikarbonat, hyperton NaCl, vasopressor	Symptomfri efter 4-6 tim	4,405
5	Arora N och medarbetare , 2012 [84]	Kokain	Narkotika		1	2		26/M/?	Blodtrycksfall, breddökat QRS >110 ms, takyarytmii, kramper	Bolus: 100 ml	Lorazepam, midazolam, fenytoin, Mg, Natriumbikarbonat	Blodtryck upp, smala QRS efter 10 min.	2,125
7	Bardsley CH och medarbetare , 2010 [85]	Warfarin	Anti-k-vitamin	Paracetamol	1	3		?/M/76 kg		Infusion: 1,5 ml/kg/min under 60 min (228 ml/h) Totalt: 228	K-vit, plasma, N- acetylcystein	2 dygn? Koncentration ner.	2,575

8	Bargeon J och medarbetare , 2012 [86]	Amitriptylin	TCA	1	3	54/M/?	Breddökat QRS >110 ms, blodtrycksfall, neurologiska symtom	Bolus: 100 ml Infusion: 0,25 ml/kg/min under 60 min	Natriumbikarbonat, noradrenalin, fenylefrin	Smala QRS efter 9 min.	4,95
9	Blaber M och medarbetare , 2012 [87]	Dosulepin	TCA	1	3	36/K/?	Hjärtstopp, breddökat QRS >110 ms, takarytm, blodtrycksfall	Bolus: 1,5 ml/kg = 100 ml Infusion: 0,25 ml/kg/min under 15 min (400 ml/h) Totalt: 500 ml	Natriumbikarbonat, amiodaron, pacemaker	Smala QRS, sinusrytm efter 1 min	4,466
10	Boegevig S och medarbetare , 2011 [88]	Dosulepin	TCA	1	3	36/K/?	Kramper, breddökat QRS >110 ms	Bolus: 1,5 ml/kg = 100 ml Infusion: 1200 ml/h under 20 min Totalt: 500 ml	Natriumbikarbonat, diazepam, kol, propofol	Smala QRS, blodtryck upp efter 15 min.	4,466
12	Brackbill M och medarbetare , 2012 [89]	Dexmedetomidin	A2-agonist	2	3	59/M/?	Hjärtstopp		Amiodaron	Hjärtrytm normal efter 8 min.	3,335
14	Carr D och medarbetare , 2009 [90]	Doxepin	TCA	1	4	80/M/?	Blodtrycksfall	Bolus: 225 ml Infusion: ((500/3)x2) ml/h under 90 min Totalt: 725 ml	Noradrenalin, vasopressin, natriumbikarbonat, kol, dopamin, Mg, lidokain	Blodtryck upp efter 150 min.	3,96
15	Carr D och medarbetare , 2009 [91]	Carvedilol	Betablockerare	1	4	31/K/?	Blodtrycksfall	Bolus: 100 ml Infusion: 150 ml/h under 15 min Totalt: 140 min	Glukagon, calciumklorid, dopamin, insulin, adrenalin	Blodtryck upp efter 90 min.	3,235
16	Castanares-Zapatero D och medarbetare , 2012 [92]	Lamotrigin	Antiepileptika	1	3	50/K/?	Breddökat QRS >110 ms	Bolus: 1,5 ml/kg Infusion: 0,5 ml/kg/min under 600 min	Kol, Mg, natriumbikarbonat	Smala QRS efter 3 minuter.	1,9

17	Charbonneau H och medarbetare, 2009 [93]	Mepivakain	Lokalanestetika		2	2	19%/67 kg	Neurologiska symtom	Bolus: 100 ml Totalt: 100 ml	Midazolam, klonazepam	Alla symtom försvann direkt.	2,675
19	Cooper G och medarbetare, 2010 [94]	Diltiazem	Kalciumblockerare, TCA	Amitriptylin	1	3	52/K/?	Blodtrycksfall, bradyarytmia	Infusion: 1000 ml/h under 30 min Totalt: 500 ml	Naloxon, atropin, calciumglukonat, natriumbikarbonat	Ekg och blodtryck normalt inom 1 tim.	2,91
20	Cordell C och medarbetare, 2010 [95]	Bupivakain	Lokalanestetika		2	2	17/K/?	Hjärtstopp, kramper, takyarytmia	Bolus: 100 + 2 x 100	Propofol, midazolam, adrenalin	Sinusrytm efter bolusdos.	3,915
21	Dagtekin O och medarbetare, 2011 [96]	Lamotrigin	Antiepileptika, Antidepressiva	Venlafaxin	1	2	44/K/60 kg	Kramper	Bolus: 2,5 ml/kg = 150 ml Totalt: 150 ml	Klonazepam, kol, hemodialys, pentotal	Symtom försvann direkt.	1,9
22	Dean P och medarbetare, 2010 [97]	Propranolol	Betablockerare		1	3	27/K/?	Hjärtstopp, kramper	Bolus: 100 ml Infusion: 1200 ml/h under 20 min Totalt: 500 ml	Atropin, glukagon, fenytoin, lorazepam, isoprenalin, adrenalin	Behov av adrenalin minskar efter infusion, sinusrytm RBBB efter 5 min.	2,805
23	Desai NN och medarbetare, 2012 [98]	Quetiapin	Neuroleptika, Antidepressiva	Desvenlafaxin	1	3	29/K/?	Hjärtstopp	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 150 min	Noradrenalin, natriumbikarbonat	Snabb hemodynamisk förbättring, noradrenalin kunde tas bort efter 90 min.	2,87
26	Dix S och medarbetare, 2011 [99]	Lidokain	Lokalanestetika		2	2	57/M/?	Hjärtstopp, neurologiska symtom	Bolus: 1 ml/kg Infusion: 0,25 ml/kg/min under 30 min	Adrenalin, amiodarone, Mg, calciumglukonat, natriumbikarbonat	Normal sinusrytm efter 5 min, normalt blodtryck.	2,325
27	Dolcourt BA och medarbetare, 2008 [100]	Verapamil	Kalciumblockerare/ Betablockerare	Atenolol	1	3	52/M/?	Blodtrycksfall, neurologiska symtom, bradyarytmia	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 30 min	Ca, dopamin, noradrenalin, insulin, pacemaker	Vaknar inom minuter.	5,1

29	Ellsworth H och medarbetare , 2012 [101]	Flekainid	Antiarytmika		1	3	51/M/?	Breddökat QRS >110 ms, bradyarytmia	Bolus: 100 ml Infusion: 1000 ml/h under 60 min Totalt: 1100 ml	Natriumbikarbonat, kol, ondansetron, atropin, Mg	Ekg, rytm och blodtryck förbättras efter oklar tid	3,085
30	Engels P och medarbetare , 2010 [102]	Amitriptylin	TCA		1	3	27/M/80 kg	Blodtrycksfall, breddökat QRS >110 ms, neurologiska symtom	Bolus: 100 ml Infusion: 800 ml/h under 30 min Totalt: 500 ml	Midazolam, natriumbikarbonat, adrenalin, noradrenalin	Man kan trappa ut katekolaminer efter oklar tid.	4,955
31	Espinet A och medarbetare , 2009 [103]	Bupivakain	Lokalanestetika	Lidokain	2	1	36/M/80 kg	Neurologiska symtom, takyarytmia	Bolus: 100 + 100 ml Infusion: 100 ml/h under 60 min Totalt: 300 ml		Symtom bättre direkt, cirkulation och neurologi efter 1 minut.	3,915
33	Finn S.D.H och medarbetare , 2009 [104]	Quetiapin	Neuroleptika, Antidepressiva	Sertralin	1	3	61/M/67 kg	Neurologiska symtom, blodtrycksfall	Bolus: 1,5 ml/kg = 100 ml Infusion: 6 ml/kg/min under 60 min Totalt: 500 ml	Kol, flumazenil	Snabb uppväkning.	2,87
34	Foxall G och medarbetare , 2007 [105]	Levobupivakain	Lokalanestetika		2	2	75/K/85 kg	Neurologiska symtom inkl. kramper, breddökat QRS >110 ms, blodtrycksfall	Bolus: 100 ml	Propofol, celocurin, metaraminol	Ekg och blodtryck förbättras efter 5 min.	3,915
35	Franken A och medarbetare , 2010 [106]	Amitriptylin	TCA		1	3	13/K/?	Hjärtstopp, neurologiska symtom inkl. kramper	Bolus: 1,5 ml/kg	Midazolam, natriumbikarbonat, Mg, barbiturat, keppra		4,955
36	Franxman TJ och medarbetare , 2011 [107]	Verapamil	Kalciumblockerare		1	4	39/K/?	Blodtrycksfall, neurologiska symtom	Bolus: 100 ml Infusion: 0,5 ml/kg/min under 8 min	Noradrenalin, calciumglukonat, glukagon, kol, dopamin	Dopamin kan sänkas 4 timmar senare.	5,135

37	French D och medarbetare , 2011 [108]	Verapamil	Kalciumblockerare		1	3	47/M/?	Blodtrycksfall, bradyarytmia	Bolus: 100 + 100 ml Infusion: 100 ml/h under 30 min Totalt: 700 ml	Atropin, glukagon, insulin-glukos, noradrenalin, Ca, dopamin, adrenalin, fenylefrin	Blodtryck steg.	5,135
38	Gallagher C och medarbetare , 2010 [109]	Bupivakain	Lokalanestetika	Lidokain	2	3	28/K/?	Hjärtstopp, neurologiska symtom inkl. kramper	Midazolam, lorazepam, adrenalin, vasopressin, atropin, natriumbikarbonat	Stabilisering av cirkulation under andra dosen.		3,915
41	Grenc D och medarbetare , 2011 [110]	Lidokain	Lokalanestetika	Triamcinolone (kortison)	2	3	84/K/?	Hjärtstopp, kramper	Bolus: 1,5 ml/kg = 100 + 100 ml	Adrenalin, atropin	Spontancirkulation efter första bolus efter 4 min.	2,325
42	Haesendonck R och medarbetare , 2012 [111]	Klorokin	Klorokin	Annat	1	3	24/M/?	Hjärtstopp, blodtrycksfall, neurologiska symtom	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min	Kol, albumin	PEA till VF som deffades, stabil cirkulation efter minuter.	4,605
43	Han S och medarbetare , 2010 [74]	Glyfosat	Växtgift		1	2	52/M/?	Blodtrycksfall, ej palpabel radialispuls	Bolus: 100 ml Infusion: 90 ml/h under 267 min Totalt: 500 ml	Dopamin, atropin, kol, dobutamin	Palpabel puls direkt efter bolus, blodtryck 100/60 1 tim senare.	-1,53
44	Harchelroad FP och medarbetare , 2008 [112]	Atenolol	Betablockerare	Paracetamol	1	3	46/K/?	Blodtrycksfall, bradyarytmia	Infusion: 500 ml/h under 120 min Totalt: 1000 ml	Atropin, glucagon	Stabil cirkulation efter 2 timmar.	0,5
45	Harvey M och medarbetare , 2011 [113]	Bupivakain	Lokalanestetika	Lidokain	2	2	69/K/80 kg	Blodtrycksfall, kramper, bradyarytmia	Bolus: 100 ml Infusion: 500 ml/h under 45 min Totalt: 500 ml	Midazolam, atropin, adrenalin, metaraminol	Blodtrycksstegring inom 20 min, inotropi sattes ut.	3,915

47	Hendron D och medarbetare , 2011 [114]	Dosulepin	TCA		1	2	2/K/10 kg	Breddökat QRS >110 ms, takyarytmi, blodtrycksfall, kramper	Bolus: 10 ml Infusion: 150 ml/h under 60 min Totalt: 160 ml	Pentothal, diazepam, kol, natriumbikarbonat	QRS smalnar av inom minuter.	4,466
48	Hillyard S och medarbetare , 2010 [115]	Venlafaxin	Antidepressiva		1	3	55/M/?	Neurologiska symtom, blodtrycksfall	Bolus: 100 ml Infusion: 600 ml/h under 400 min Totalt: 500 ml	Vätska hjälpte för blodtryck	Vaknar upp från GCS 3-11 inom 30 min.	2,715
52	Jacob J och medarbetare , 2011 [116]	Propafenon	Antiarytmika	Dabigatran, Sildenafil, Enalapril	1	3	59/M/?	Breddökat QRS >110 ms, blodtrycksfall	Bolus: 100 ml Infusion: 1050 ml/h under 30 min Totalt: 625 ml	Natriumbikarbonat, dopamin, noradrenalin, adrenalin	QRS smalnar av, sänkning av inotropa/vasoakt inom 1 timme.	3,32
53	Jakkala-Saibaba R och medarbetare , 2011 [117]	Kokain	Narkotika		1	2	28/M/80 kg	Takyarytmi, blodtrycksfall, kramper	Bolus: 1,5 ml/kg = 120 ml Infusion: 1140 ml/h under 20 min Totalt: 500 ml	Diazepam, pentotal, fenytoin, noradrenalin, natriumbikarbonat	Sinusrytm inom 15 minuter.	2,125
54	Jang DH och medarbetare , 2011 [118]	Pentobarbital	Anestesimedel	Fenytoin	2	3	20/M/?	Hjärtstopp	Bolus: 1,5 ml/kg		Cirkulation efter bolusdos, efter 10 min.	2,025
55	Jelic T och medarbetare , 2012 [119]	Baklofen	Spasmolytikum		1	3	40/K/?	Blodtrycksfall, neurologiska symtom	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min		Blodtryck steg inom 30 min.	-0,8
56	Jolliff HA och medarbetare , 2010 [120]	Difenhydramin	Antihistamin		1	3	42/K/?	Hjärtstopp	Bolus: 60 ml	Atropin, adrenalin, natriumbikarbonat	Puls fås efter bolus inom 1 minut.	3,545
57	Jovic-Stotic J och medarbetare , 2012 [121]	Verapamil	Kalciumblockerare/ bensodiazepin	Diazepam	1	3	38/K/?	Blodtrycksfall, bradyarytmi	Totalt: 500 ml	Ca, dopamin	Blodtryck normalt inom 60 min.	5,135

57	Jovic-Stosic J och medarbetare , 2012 [121]	Verapamil	Kalciumblockerare/ bensodiazepin	Bromazepam	1	3	41/K/?	Blodtrycksfall, neurologiska symtom	Totalt: 500 ml	Dopamin, Ca, flumazenil, glukagon, kol	Blodtryck normalt inom 20 min.	5,135
58	Jovic-Stosic J och medarbetare , 2011 [122]	Propranolol	Betablockerare	Etanol	1	2	31/K/?	Breddökat QRS >110 ms, takyarytmia, blodtrycksfall, kramper	Bolus: 100 ml Infusion: 1200 ml/h under 20 min Totalt: 1000 ml	Diazepam, atropin, glukagon, insulin, dopamin, natriumbikarbonat	Kramper upphörde inom 10-20 min, Blodtryck bra efter 30 min.	2,805
59	Kapadia KJ och medarbetare , 2010 [123]	Imipramin	TCA		1	4	52/K/?	Breddökat QRS >110 ms, bradyarytmia, takyarytmia, kramper	Bolus: 100 ml + 100 ml Infusion: 0,25 ml/kg/min	Natriumbikarbonat, vasopressin	Stabiliseras under 6 tim.	4,405
59	Kapadia KJ och medarbetare , 2010 [123]	Doxipin	TCA		1	4	44/K/?	Breddökat QRS >110 ms, kramper	Bolus: 100 ml + 100 ml Infusion: 0,25 ml/kg/min	Natriumbikarbonat, bensodiazepin	Stabiliseras under 4 tim.	3,96
61	Lange B och medarbetare , 2012 [124]	Lidokain	Lokalanestetika		2	1	31/M/61 kg	Neurologiska symtom	Bolus: 1,5 ml/kg = 100 ml		Mer allert inom 5 minuter, talar och orienterad efter 10 minuter.	2,325
62	Levine M och medarbetare , 2012 [78]	Amitriptylin	TCA		1	3	13/K/?	Hjärtstopp, breddökat QRS >110 ms, takyarytmia, kramper	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 30 min	Midazolam, fentanyl, natriumbikarbonat, lorazepam, Mg, adrenalin, lidokain	Efter 2:a bolus egen rytm och kramper försvann, efter infusion sinus- takykardi.	4,955
63	Levine M och medarbetare , 2012 [79]	Doxipin	TCA	Keppra, Citalopram	1	3	20/M/?	Hjärtstopp, breddökat QRS >110 ms, bradyarytmia	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 30 min Totalt: 1210 ml	Lorazepam, natriumbikarbonat, adrenalin	Bärande circulation efter oklar tid.	3,96
64	Liang C och medarbetare , 2011 [125]	Verapamil	Kalciumblockerare		1	4	41/K/?	Bradyarytmia, blodtrycksfall	Bolus: 100 ml Infusion: 0,5 ml/kg/min	Adrenalin, noradrenalin	Kan sänka noradrenalin 3 tim efter ILE, bra efter 48 tim.	5,135

65	Lin E och medarbetare , 2010 [126]	Bupivakain	Lokalanestetika		2	2	2dgr/M/3,2 kg	Hjärtstopp, breddökat QRS >110 ms	Bolus: 1 ml/kg = 3,2 ml	Ekg blev ok inom 3 min.	3,915	
66	Litz R.J och medarbetare , 2006 [127]	Ropivakain	Lokalanestetika		2	3	84/K	Hjärtstopp, neurologiska symtom inkl. kramper	Bolus: 100 ml Infusion: 600 ml/h under 10 min	Pentotal, adrenalin	Från asystoli till rytm efter 10 min, blodtryck 100.	3,49
67	Litz R.J och medarbetare , 2008 [128]	Mepivakain	Lokalanestetika	Prilocain	2	2	91/M/57 kg	Neurologiska symtom	Bolus: 1 ml/kg = 50 + 50 ml Infusion: 0,25 ml/kg/min (840ml/h) Totalt: 300 ml		Medveten inom 5 min.	2,675
68	Livshits Z och medarbetare , 2011 [129]	Bupropion	Antidepressiva	Nikotionavvänjnings medel	1	3	51/K/?	Breddökat QRS >110 ms, blodtrycksfall, kramper	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 60 min	Natriumbikarbonat, calciumglukonat, dopamin, noradrenalin, lidocain	Blodtryck steg inom 30 min.	3,275
70	Lu JJ och medarbetare , 2009 [130]	Quetiapin	Neuroleptika		1	3	16/K/?	Breddökat QRS >110 ms, blodtrycksfall, neurologiska symtom	Bolus: 100 ml Infusion: 420 ml/h under 60 min Totalt: 520 ml		QTc kortas inom 30 minuter, sedan normalt och sen 650 igen som sedan normaliseras utan åtgärd. Vaknar upp efter ILE.	2,87
71	Ludot H och medarbetare , 2008 [131]	Ropivakain	Lokalanestetika	Lidokain	2	1	13/K/55 kg	Takyarytm, breddökat QRS >110 ms	Bolus: 150 ml		Hjärtfrekvens till 100, normala QRS inom 2 min.	3,49
74	Markowitz S och medarbetare , 2009 [132]	Bupivakain	Lokalanestetika		2	3	17/M/61 kg	Kramper	Totalt: 500 ml	Midazolam		3,915

75	Marwick P och medarbetare , 2009 [133]	Bupivakain	Lokalanestetika	2	3	33/M/72 kg	Hjärtstopp, breddökat QRS >110 ms, kramper	Bolus: 2,08 ml/kg = 150 ml Infusion: 0,16 ml/kg/min (700 ml/h) under 30 min Totalt: 500 ml	Pental, adrenalin	Cirkulation och smala komplex efter 3 min.	3,915
76	McAllister R och medarbetare , 2012 [134]	Olanzapin	Neuroleptika	1	2	4/M/?	Neurologiska symtom, takyarytmia	Bolus: 1,5 ml/kg		Minskad takykardi och ökad vakenhet inom 15 min.	3,5
77	McCutchen T och medarbetare , 2008 [135]	Bupivakain	Lokalanestetika	2	3	82/K/?	Takyarytmia, kramper	Bolus: 100 ml Infusion: 1600 ml/h under 15 min Totalt: 500 ml	Midazolam, amiodaron	Cirkulation stabiliseras under oklara tider.	3,915
78	Meehan TJ och medarbetare , 2009 [136]	Carvedilol	Betablockerare	1	3	53/M/?	Blodtrycksfall	Glukagon, dopamin, noradrenalin		Snabb förbättring men ingen tid angiven.	3,235
78	Meehan TJ och medarbetare , 2009 (136)	Propranolol	Betablockerare	1	3	22/K/?	Hjärtstopp	Glukagon, atropin, adrenalin, natriumbikarbonat		Inom minuter.	2,805
80	Mizutani K och medarbetare , 2011 [137]	Ropivakain	Lokalanestetika	2	2	24/M/?	Neurologiska symtom	Bolus: 100 ml		Neurologiska symtom försvann inom minuter.	3,49
84	Moussot P och medarbetare , 2011 [138]	Flekainid	Antiarytmika	1	2	72/K/?	Breddökat QRS >110 ms, blodtrycksfall	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min	Adrenalin, natriumbikarbonat	Cirkulation stabil inom 30 minuter så att adrenalin kunde minska.	3,085
85	Nair A och medarbetare , 2011 [139]	TCA	TCA	1	3	34/K/?	Takyarytmia	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 45 min	Adrenalin, Natriumbikarbonat, lidokain	Cirkulation stabil men ingen tid angiven.	? Oklart TCA derivat

87	Nguyen V och medarbetare , 2012 [140]	Ropivakain	Lokalanestetika		2	2	19/M/72 kg	Neurologiska symtom, takyarytm	Bolus: 1,5 ml/kg = 100 ml	Midazolam	Alla symtom försvinner inom 2 minuter.	3,49
89	Oakes JA och medarbetare , 2009 [141]	Diltiazem	Kalciumblockerare	Lamotrigin, Citalopram	1	3	47/K/?	Bradyarytm, blodtrycksfall	Bolus: 1 ml/kg Infusion: 0,05 ml/kg/min	Ca, noradrenalin, adrenal, glukagon, insulin/glukos, lorazepam, atropin, fenylefrin, milrinon, vasopressin, digoxin, pacemaker	Blodtryck steg inom 20 minuter.	2,91
90	Oti C och medarbetare , 2010 [142]	Amitriptylin	TCA		1	3	49/K/?	Neurologiska symtom, blodtrycksfall	Bolus: 1,5 ml/kg Totalt: 1000 ml		GCS steg snabbt, behövde inte intuberas.	4,955
91	Rosenblatt M och medarbetare , 2006 [143]	Bupivakain	Lokalanestetika	Mepivacain	2	2	58/M/82 kg	Hjärtstopp, kramper	Bolus: 100 ml Infusion: 0,5 ml/kg/min under 120 min Totalt: 5020 ml	Atropin, adrenal, amiodaron, vasopressin	Cirkulation förbättrades inom någon minut.	3,915
92	Sakai T och medarbetare , 2010 [144]	Ropivakain	Lokalanestetika		2	4	40/K/40 kg	Blodtrycksfall, neurologiska symtom inkl. kramper	Bolus: 100 ml Totalt: 230 ml	Diazepam	Återfår blodtryck och medvetande.	3,49
94	Schwarz ES och medarbetare , 2012 [145]	Difenhydramin	Antihistamin		1	3	30/M/?	Takyarytm, breddökat QRS >110 ms, blodtrycksfall, kramper, hjärtstopp	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 60 min Totalt: 1000 ml	Noradrenalin, lorazepam, amiodaron, lidokain, noradrenalin, vasopressin	Vitalparametrar förbättras, kan sänka doser av vasoaktiva inom 2 tim.	3,545
95	Shah S och medarbetare , 2009 [146]	Bupivakain	Lokalanestetika		2	2	40dgr/M/5 kg	Blodtrycksfall, takyarytm	Bolus: 2 ml/kg = 10 ml	Adrenalin, albumin	Cirkualtion stabiliseras under några minuter.	3,915

96	Shih Y-H och medarbetare , 2011 [147]	Bupivakain	Lokalanestetika	Lidokain	2	2	69/K/48,5 kg	Bradyarytmia, blodtrycksfall, neurologiska symtom	Bolus: 1 ml/kg = 50 ml Totalt: 50 ml	Atropin, effedrin, natriumbikarbonat	Ökad hjärtfrekvens och blodtryck samt medvetandehöjning efter 2 minuter.	3,915
97	Sirianni A och medarbetare , 2008 [148]	Bupropion	Antidepressiva, Antiepileptika	Lamotrigin	1	2	17/K/55 kg	Hjärtstopp, breddökat QRS >110 ms, neurologiska symtom inkl. kramper	Bolus: 1,8 ml/kg = 100 ml Totalt: 100 ml	Naloxone, adrenalin, Mg, natriumbikarbonat, amiodaron, noradrenalin	Återhämtning av sinusrytm och QRS smalar av efter 1 minut.	3,275
98	Smith H och medarbetare , 2008 [149]	Bupivakain	Lokalanestetika		2	2	83/M/75 kg	Hjärtstopp, kramper	Bolus: 3 ml/kg = 250 ml Infusion: 0,2 ml/kg/min	Adrenalin, atropin, midazolam	Puls återkommer, bred takykardi som senare blir normal sinusrytm efter 2 minuter.	3,915
100	Sonsino D och medarbetare , 2009 [150]	Ropivakain	Lokalanestetika		2	2	92/K/?	Hjärtstopp, kramper	Bolus: 50 ml Totalt: 50 ml	Propofol vid kramper men innan hjärtstopp, adrenalin	Cirkulation återkom under tiden som bolusdos gavs, effekt inom sekunder.	3,49
101	Spence A, 2007 [151]	Bupivakain	Lokalanestetika		2	2	18/K/86 kg	Neurologiska symtom	Bolus: 1,2 ml/kg = 100 ml Totalt: 500 ml		Fullt medvetande inom 30 sekunder.	3,915
102	Stellplug SJ och medarbetare , 2010 [152]	Flekainid	Antiarytmika		1	3	51/M/?	Breddökat QRS >110 ms, blodtrycksfall, bradyarytmia	Bolus: 100 ml Totalt: 1000 ml	Natriumbikarbonat, atropin, Mg	Oklara tider och andra läkemedel.	3,085
104	Stellplug SJ och medarbetare , 2011 [153]	Diltiazem	Kalciumblockerare	Metoprolol, Amiodaron	1	3	30/K/?	Blodtrycksfall, neurologiska symtom	Bolus: 100 ml Infusion: 1500 ml/h under 60 min Totalt: 1600 ml	Ca, insulin, glukos	Blodtryck normalt inom 15 min och förvirring avtog.	2,91

105	Stellpflug S och medarbetare , 2010 [154]	Nebivolol	Betablockerare	Etanol, Diazepam, Baklofen, Kokain	1	3	48/M/?	Hjärtstopp, bradyarytmia, blodtrycksfall, neurologiska symtom	Bolus: 100 ml Infusion: 0,25 ml/kg/min (1000 ml/h) under 60 min Totalt: 1100 ml	Ca, atropin, adrenalin, insulin	Cirkulation efter 30 sekunder, efter 1 min högt blodtryck och puls ua.	2,825
109	Ten Tusscher B och medarbetare , 2011 [155]	Propafenon	Antiarytmika		1	3	21/K/?	Hjärtstopp, breddökat QRS >110 ms, kramper	Bolus: 100 ml Infusion: 100 ml/h under 60 min Totalt: 1100 ml	Diazepam, midazolam, adrenalin, noradrenalin, natriumbikarbonat, kalciumklorid, glukagon, kol	Vasoaktiva läkemedel kunde minskas och QRS smalnar av inom 1 timme.	3,32
112	Varela H och medarbetare , 2010 [156]	Bupivakain	Lokalanestetika	Ropivacain	2	2	83/K/70 kg	Bradyarytmia, blodtrycksfall, takyarytmia, kramper	Bolus: 3,6 ml/kg = 250 ml Infusion: 250 ml/h Totalt: 500 ml	Atropin, midazolam, transkutan pacemaker	Cirkulation normaliseras samt blodtryck efter 4-5 minuter, bra efter 45 min.	3,915
113	Warren J och medarbetare , 2008 [157]	Bupivakain	Lokalanestetika	Mepivacain	2	3	60/M/83 kg	Hjärtstopp, breddökat QRS >110 ms, takyarytmia	Infusion: 500 ml/h under 30 min Totalt: 250 ml	Atropin, adrenalin, vasopressin, natriumbikarbonat, Mg	30 min Repar sig successivt under 30 min.	3,915
115	Weinberg G och medarbetare , 2009 [158]	Haloperidol	Neuroleptika		2	2	45/K/?	Hjärtstopp, takyarytmia	Bolus: 250 ml Totalt: 250 ml	Adrenalin, atropin, amiodaron	Rytm ändras till smal takykardi inom 2 minuter, blodtryck bra efter 5 min samt vaken.	3,68
117	Whiteside J, 2008 [159]	Bupivakain	Lokalanestetika		2	2	70/K/74 kg	Neurologiska symtom inkl. kramper	Bolus: 1,5 ml/kg = 100 ml Totalt: 100 ml	Kramperna upphör direkt, medveten 3-4 min senare.		3,915

118	Wilson B och medarbetare , 2012 [160]	Diltiazem	Kalciumblockerare		1	3	57/K/?	Blodtrycksfall, bradyarytmia	Bolus: 1,5 ml/kg Infusion: 0,25 ml/kg/min under 30 min	Dopamin, noradrenalin, glukagon	Flera timmar efter kan vasoaktiva läkemedel minsas.	2,91
119	Wong G.K och medarbetare , 2010 [161]	Bupivakain	Lokalanestetika		2	3	6/M/24 kg	Blodtrycksfall, breddökat QRS >110 ms, hjärtstopp	Bolus: 0,8 ml/kg = 20 ml Infusion: 0,25 ml/kg/min under 30 min Totalt: 200 ml	Atropin, adrenalin	Blodtryck steg snabbt, men cirkulationen var redan tillbaka.	3,915
121	Worrall C och medarbetare , 2012 [162]	Venlafaxin	Antidepressiva	Alkohol, Zolpidem	1	2	43/K/?	Blodtrycksfall, neurologiska symtom	Bolus: 150 ml	Naloxone	Blodtryck steg till normalt inom 5 minuter.	2,715
122	You Y och medarbetare , 2012 [75]	Glyfosat	Växtgift		1	2	65/M/81 kg	Blodtrycksfall, breddökat QRS >110 ms, hjärtstopp, neurologiska symtom	Bolus: 1,5 ml/kg = 130 ml Infusion: 0,25 ml/kg/min under 20 min Totalt: 530 ml	Noradrenalin	EKG förbättrades omedelbart. Blodtryck normaliseras.	-1,53
123	Young A och medarbetare , 2009 [163]	Verapamil	Kalciumblockerare	Bupropion, mm	1	3	32/M/?	Neurologiska symtom, blodtrycksfall, bradyarytmia	Bolus: 100 ml Infusion: 0,008 ml/kg/min under 24 min	Noradrenalin, glukagon, kalciumglukonat	Glukagon och noradrenalin kunde minsas under dygnet.	5,135
124	Yurtlu B och medarbetare , 2012 [164]	Olanzapin	Neuroleptika		1	2	39/K/?	Neurologiska symtom	Bolus: 100 + 100 ml Totalt: 200 ml		Vaknar upp inom 15 minuter, somnar om efter 10 timmar och får då ny bolus, vaknar upp under bolus som pågick under 30 minuter.	3,5

Fullständig referenslista

1. Weinberg GL, VadeBoncouer T, Ramaraju GA, et al. Pretreatment or resuscitation with a lipid infusion shifts the dose-response to bupivacaine-induced asystole in rats. *Anesthesiology* 1998;88:1071-5.
2. Cave G, Harvey M, Graudins A. Intravenous lipid emulsion as antidote: a summary of published human experience. *EMA* 2011;23:123-41.
3. Vanden Hoek TL, Morrison LJ, Shuster M, et al. Part 12: cardiac arrest in special situations: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation* 2010;122(18 Suppl 3):S829-61.
4. Neal JM, Mulroy MF, Weinberg GL. American Society of Regional Anesthesia and Pain Medicine checklist for managing local anesthetic systemic toxicity: 2012 version. *Reg Anesth Pain Med* 2012;37:16-8.
5. Picard J, Ward SC, Zumpe R, et al. Guidelines and the adoption of 'lipid rescue' therapy for local anaesthetic toxicity. *Anaesthesia* 2009;64:122-5.
6. Neal JM, Bernards CM, Butterworth JF, et al. ASRA practice advisory on local anesthetic systemic toxicity. *Reg Anesth Pain Med* 2010;35:152-61.
7. Picard J, Meek T. Lipid emulsion to treat overdose of local anaesthetic: the gift of the glob. *Anaesthesia* 2006;61:107-9.
8. Weinberg G, Ripper R, Feinstein DL, et al. Lipid emulsion infusion rescues dogs from bupivacaine-induced cardiac toxicity. *Reg Anesth Pain Med* 2003;28:198-202.
9. Hicks SD, Salcido DD, Logue ES, et al. Lipid emulsion combined with epinephrine and vasopressin does not improve survival in a swine model of bupivacaine-induced cardiac arrest. *Anesthesiology* 2009;111:138-46.
10. Mauch J, Martin Jurado O, Spielmann N, et al. Comparison of epinephrine vs lipid rescue to treat severe local anesthetic toxicity - an experimental study in piglets. *Paediatr Anaesth* 2011;21:1103-8.
11. Varney SM, Bebarta VS, Vargas TE, et al. Intravenous lipid emulsion therapy does not improve hypotension compared to sodium bicarbonate for tricyclic antidepressant toxicity: a randomized, controlled pilot study in a swine model. *Acad Emerg Med* 2014;21:1212-9.
12. Cave G, Harvey M. Intravenous lipid emulsion as antidote beyond local anesthetic toxicity: a systematic review. *Acad Emerg Med* 2009;16:815-24.
13. Jamaty C, Bailey B, Larocque A, et al. Lipid emulsions in the treatment of acute poisoning: a systematic review of human and animal studies. *Clin Toxicol (Phila)* 2010;48:1-27.

14. Perichon D, Turfus S, Gerostamoulos D, et al. An assessment of the in vivo effects of intravenous lipid emulsion on blood drug concentration and haemodynamics following oro-gastric amitriptyline overdose. *Clin Toxicol (Phila)* 2013;51:208-15.
15. Li B, Yan J, Shen Y, et al. Association of sustained cardiovascular recovery with epinephrine in the delayed lipid-based resuscitation from cardiac arrest induced by bupivacaine overdose in rats. *Br J Anaesth* 2012;108:857-63.
16. Weinberg GL, Di Gregorio G, Ripper R, et al. Resuscitation with lipid versus epinephrine in a rat model of bupivacaine overdose. *Anesthesiology* 2008;108:907-13.
17. Kriegstein J, Meffert A, Niemeyer DH. Influence of emulsified fat on chlorpromazine availability in rabbit blood. *Experientia* 1974;30:924-6.
18. Weinberg GL, Ripper R, Murphy P, et al. Lipid infusion accelerates removal of bupivacaine and recovery from bupivacaine toxicity in the isolated rat heart. *Reg Anesth Pain Med* 2006;31:296-303.
19. Chen Y, Xia Y, Liu L, et al. Lipid emulsion reverses bupivacaine-induced asystole in isolated rat hearts: concentration-response and time-response relationships. *Anesthesiology* 2010;113:1320-5.
20. French D, Smollin C, Ruan W, et al. Partition constant and volume of distribution as predictors of clinical efficacy of lipid rescue for toxicological emergencies. *Clin Toxicol (Phila)* 2011;49:801-9.
21. Papadopoulou A, Willers JW, Samuels TL, et al. The use of dye surrogates to illustrate local anesthetic drug sequestration by lipid emulsion: a visual demonstration of the lipid sink effect. *Reg Anesth Pain Med* 2012;37:183-7.
22. Leo A, Hansch C, Elkins D. Partition Coefficients and Their Uses. *Chem Rev* 1971;71:525-+.
23. Weinberg GL. Lipid emulsion infusion: resuscitation for local anesthetic and other drug overdose. *Anesthesiology* 2012;117:180-7.
24. Litonius ES, Niiya T, Neuvonen PJ, et al. Intravenous lipid emulsion only minimally influences bupivacaine and mepivacaine distribution in plasma and does not enhance recovery from intoxication in pigs. *Anesth Analg* 2012;114:901-6.
25. Niiya T, Litonius E, Petaja L, et al. Intravenous lipid emulsion sequesters amiodarone in plasma and eliminates its hypotensive action in pigs. *Ann Emerg Med* 2010;56:402-8.e2.
26. Kuo I, Akpa BS. Validity of the lipid sink as a mechanism for the reversal of local anesthetic systemic toxicity: a physiologically based pharmacokinetic model study. *Anesthesiology* 2013;118:1350-61.
27. Tamm C, Benzi R, Papageorgiou I, et al. Substrate competition in postischemic myocardium. Effect of substrate availability during reperfusion on metabolic and contractile recovery in isolated rat hearts. *Circ Res* 1994;75:1103-12.

28. Van de Velde M, Wouters PF, Rolf N, et al. Long-chain triglycerides improve recovery from myocardial stunning in conscious dogs. *Cardiovasc Res* 1996;32:1008-15.
29. Harvey M, Cave G. Intralipid outperforms sodium bicarbonate in a rabbit model of clomipramine toxicity. *Ann Emerg Med* 2007;49:178-85, 85.e1-4.
30. Kline JA, Leonova E, Raymond RM. Beneficial myocardial metabolic effects of insulin during verapamil toxicity in the anesthetized canine. *Crit Care Med* 1995;23:1251-63.
31. Tebbutt S, Harvey M, Nicholson T, et al. Intralipid prolongs survival in a rat model of verapamil toxicity. *Academic emergency medicine: official journal of the Society for Acad Emerg Med* 2006;13:134-9.
32. Giftinformationscentralens databas för läkare, 2015. www.giftinfo.se/lipidterapi.
33. Råd för behandling av toxisk reaktion utlöst av lokalanestetika: Svensk Förening för Anestesi och Intensivvård; 2013. Available from: http://sfai.se/system/files/21-12_Riktlinje_Toxisk_reaktion_lokalanestetika.pdf.
34. Weinberg GL. Treatment of local anesthetic systemic toxicity (LAST). *Reg Anesth Pain Med* 2010;35:188-93.
35. Waitzberg DL, Torrinhos RS, Jacintho TM. New parenteral lipid emulsions for clinical use. *JPEN* 2006;30:351-67.
36. The use of the WHO-UMC system for standardised case causality assessment The Uppsala Monitoring Centre. Available from: <http://who-umc.org/Graphics/24734.pdf>.
37. Di Gregorio G, Kessler C, Weinberg G. Lipid emulsion in treatment of sodium channel blocker overdose. *Ann Emerg Med* 2008;51:489-.
38. Haworth MD, Smart L. Use of intravenous lipid therapy in three cases of feline permethrin toxicosis. *J Vet Emerg Crit Care* 2012;22:697-702.
39. Zausig YA, Zink W, Keil M, et al. Lipid emulsion improves recovery from bupivacaine-induced cardiac arrest, but not from ropivacaine- or mepivacaine-induced cardiac arrest. *Anesth Analg* 2009;109:1323-6.
40. Diaz J, Bernasinski M, Malinovsky JM. Reversal of neurologic symptoms related to lidocaine toxicity with a lipid emulsion administration. *Annales Francaises d'Anesthesie et de Reanimation* 2012;31:647-.
41. Etesse B, Letouzey V, Roger C, et al. Epidural analgesia is not the only cause of peripartum central neurologic symptoms. Report of one case of posterior reversible encephalopathy syndrome. *Annales Francaises d'Anesthesie et de Reanimation* 2011;30:57-60.
42. Huge V, Baschnegger H, Moehnle P, et al. Amitriptyline-induced cardiac arrest: treatment with fat emulsion. *Anaesthesia* 2011;60:541-5.

43. Zimmer C, Piepenbrink K, Riest G, et al. Cardiotoxic and neurotoxic effects after accidental intravascular bupivacaine administration - Therapy with lidocaine propofol and lipid emulsion. *Anaesthetist* 2007;56:449-53.
44. Hubler M, Gabler R, Ehm B, et al. Successful resuscitation following ropivacaine-induced systemic toxicity in a neonate. *Anaesthesia* 2010;65:1137-40.
45. Man D, Podichetty VK. Lipid rescue in resuscitation of local anesthetic-induced cardiac arrest in aesthetic surgery. *Plast Reconstr Surg* 2010;125:257E-9E.
46. Nelsen J, Holland M, Dougherty M, et al. Severe central nervous system and cardiovascular toxicity in a pediatric patient after ingestion of an over-the-counter local anesthetic. *Pediatr Emerg Care* 2009;25:670-3.
47. Smith NA. Possible side effects of intralipid rescue therapy. *Anaesthesia* 2010;65:210-1.
48. Uncles DR, Willers JW, Samuels TL, et al. Local anaesthetic systemic toxicity treated with intravenous lipid emulsion: ineffective treatment or selection of an inadequate lipid rescue dose? *Eur J Anaesthesiol* 2011;28:390-1.
49. Mottram AR, Valdivia CR, Makiel斯基 JC. Fatty acids antagonize bupivacaine-induced I_{Na} blockade. *Clin Toxicol (Phila)* 2011;49:729-33.
50. Bora KM, Hedge MW. Neonatal Triglyceride Levels after Massive Lipid Bolus - Implications for Lipid Rescue. *Clin Toxicol (Phila)* 2009;47:760-.
51. Low E, Ryan CA. Overdose of intravenous Intralipid in a premature neonate. *Ir J Med Sci* 2010;179:S185-S6.
52. Markos M, Weinberg G, Rubinstein I. Lipid emulsion resuscitation of hydrophobic drug overdose-induced toxicity in young children. *Crit Care Med* 2012;40:U163-U4.
53. Tabone D. Use of Intralipid in tricyclic overdose. *Emerg Med J* 2010;27:396-7.
54. Tabone D, Ferguson C. Intralipid/lipid emulsion in beta-blocker overdose. *Emerg Med J* 2011;28:991-3.
55. Turner-Lawrence DE, Kerns Li W. Intravenous fat emulsion: a potential novel antidote. *J Med Toxicol* 2008;4:109-14.
56. Geib AJ, Manini A, Liebelt E. Case Series of Intravenous Lipid Emulsion Rescue for Drug Cardiotoxicity. *Clinical Toxicology* 2009;47:704-.
57. Samuels TL, Uncles DR, Willers JW. Intravenous lipid emulsion treatment for propranolol toxicity: Another piece in the lipid sink jigsaw fits. *Clin Toxicol (Phila)* 2011;49:769-.

58. Stellpflug SJ, Cole JB, Fritzlar SJ, et al. Overdose of diltiazem, metoprolol, and amiodarone treated successfully with intravenous fat emulsion and high dose insulin in an awake patient. *Clin Toxicol (Phila)* 2010;48:612-.
59. Geib AJ, Liebelt E, Manini AF. Clinical experience with intravenous lipid emulsion for drug-induced cardiovascular collapse. *J Med Toxicol* 2012;8:10-4.
60. Hurley WT, Hanlon P. Lipid emulsion as an antidote at the Washington poison center; use in carbamazepine, flecanide, hydroxychloroquine, bupivacaine, and bupropion. *Clin Toxicol (Phila)* 2009;47:729-30.
61. Moore PW, Urquhart M, McMillion D, et al. Severe lamotrigine toxicity treated with intralipid emulsion therapy. *Clin Toxicol (Phila)* 2012;50:699-.
62. Taftachi F, Sanaei-Zadeh H, Sepehrian B, et al. Lipid emulsion improves Glasgow coma scale and decreases blood glucose level in the setting of acute non-local anesthetic drug poisoning--a randomized controlled trial. *Eur Rev Med Pharmacol Sci* 2012;16 Suppl 1:38-42.
63. Aveline C, Cognet F, Bonnet F. Ineffectiveness of intralipid infusion for central nervous toxicity following ultrasound-guided sciatic nerve block with lidocaine-ropivacaine solution: interaction between carbamazepine, local anaesthetic and intralipid? *Eur J Anaesthesiol* 2010;27:1070-2.
64. Calenda E, Dinescu SA. Failure of lipid emulsion to reverse neurotoxicity after an ultrasound-guided axillary block with ropivacaine and mepivacaine. *J Anesth* 2009;23:472-3.
65. Cole JB, Ellsworth H, Engebretsen KM, et al. Failure of high dose insulin and intravenous fat emulsion in 2 patients with poison-induced cardiogenic shock. *Clin Toxicol (Phila)* 2011;49:537-8.
66. Downes MA, Calver LA, Isbister GK. Intralipid treatment of sedative hypnotic drug overdose: a case series. *Clin Toxicol (Phila)* 2011;49:244-.
67. Kiberd MB, Minor SF. Lipid therapy for the treatment of a refractory amitriptyline overdose. *CJEM* 2012;14:193-7.
68. Miller SN, Greenberg MI. Failure of lipid emulsion therapy to treat a metformin overdose. *Clin Toxicol (Phila)* 2011;49:538-9.
69. Montiel V, Gougnard T, Hantson P. Diltiazem poisoning treated with hyperinsulinemic euglycemia therapy and intravenous lipid emulsion. *Eur J Emer Med* 2011;18:121-3.
70. Nogar JN, Minns AB, Savaser DJ, et al. Severe sodium channel blockade and cardiovascular collapse due to a massive Lamotrigine overdose. *Clin Toxicol (Phila)* 2011;49:854-7.
71. Watt P, Malik D, Dyson L. Gift of the glob--is it foolproof? *Anaesthesia* 2009;64:1031-3.

72. West PL, McKeown NJ, Hendrickson RG. Iatrogenic lipid emulsion overdose in a case of amlodipine poisoning. *Clin Toxicol (Phila)* 2010;48:393-6.
73. Wong OF, Chan YC, Lam SK, et al. Clinical experience in the use of intravenous lipid emulsion in hydroxychloroquine and chloroquine overdose with refractory shock. *Hong Kong J Emerg Med* 2011;18:243-8.
74. Han SK, Jeong J, Yeom S, et al. Use of a lipid emulsion in a patient with refractory hypotension caused by glyphosate-surfactant herbicide. *Clin Toxicol (Phila)* 2010;48:566-8.
75. You Y, Jung WJ, Lee MJ. Effect of intravenous fat emulsion therapy on glyphosate-surfactant-induced cardiovascular collapse. *Am J Emerg Med* 2012;30:2097 e1-2.
76. Perichon D, Turfus S, Graudins A. Intravenous lipid emulsion does not improve hemodynamics or survival in a rodent model of oral verapamil poisoning. *Clin Toxicol (Phila)* 2013;51:277-.
77. Levine M, Skolnik AB, Ruha AM, et al. Complications following antidotal use of intravenous lipid emulsion therapy. *J Med Toxicol* 2014;10:10-4.
78. Levine M, Brooks DE, Franken A, et al. Delayed-onset seizure and cardiac arrest after amitriptyline overdose, treated with intravenous lipid emulsion therapy. *Pediatrics* 2012;130:E432-E8.
79. Levine M, Graeme K, Skolnik A. Pancreatitis following treatment with intravenous lipid emulsion therapy for severe TCA toxicity. *Clin Toxicol (Phila)* 2012;50:684-.
80. Agarwala R, Ahmed SZ, Wiegand TJ. Massive TCA ingestion treated successfully with a prolonged infusion of 20% lipid emulsion. *Clin Toxicol (Phila)* 2012;50:579-.
81. Admani B, Essajee F. Successful resuscitation of a three month old child with intralipid infusion, presumed to have bupivacaine induced seizures and cardiovascular complications: case report. *East Afr Med J* 2010;87:354-6.
82. Al-Alami AA. Successful treatment of early ropivacaine toxicity with intralipid in a patient with attention deficit hyperactivity disorder. *Middle East J Anesthesiol* 2011;21:427-9.
83. Al-Duaij N, George M, O'Donnell K, et al. Lipid emulsion therapy in massive imipramine overdose. *Clin Toxicol (Phila)* 2009;47:460-.
84. Arora NP, Berk WA, Aaron CK, et al. Usefulness of intravenous lipid emulsion for cardiac toxicity from cocaine overdose. *Am J Cardiol* 2013;111:445-7.
85. Bardsley CH, Petzel R, Kahn S, et al. Lipid therapy for severe bromadiolone toxicity. *Clin Toxicol (Phila)* 2010;48:648-.
86. Bargeon JL, Brennan E, Baltarowich L, et al. Lipid rescue for tricyclic antidepressant toxicity: a case report. *Clin Toxicol (Phila)* 2012;50:584-.

87. Blaber MS, Khan JN, Brebner JA, et al. "Lipid rescue" for tricyclic antidepressant cardiotoxicity. *J Emerg Med* 2012;43:465-7.
88. Boegevig S, Rothe A, Tfelt-Hansen J, et al. Successful reversal of life threatening cardiac effect following dosulepin overdose using intravenous lipid emulsion. *Clin Toxicol (Phila)* 2011;49:337-9.
89. Brackbill M, Spray J. Treatment of dexmedetomidine and haloperidol cardiac toxicity with lipid infusion therapy. *Crit Care Med* 2012;40:U307-U.
90. Carr D, Boone A, Hoffman RS, et al. Successful Resuscitation of a doxepin overdose using intravenous fat emulsion (IFE). *Clin Toxicol (Phila)* 2009;47:710-.
91. Carr D, Boone A, Hoffman RS, et al. Successful resuscitation of a carvedilol overdose using intravenous fat emulsion (IFE). *Clin Toxicol (Phila)* 2009;47:727-.
92. Castanares-Zapatero D, Wittebole X, Huberlant V, et al. Lipid emulsion as rescue therapy in lamotrigine overdose. *J Emerg Med* 2012;42:48-51.
93. Charbonneau H, Marcou TA, Mazoit JX, et al. Early use of lipid emulsion to treat incipient mepivacaine intoxication. *Reg Anesth Pain Med* 2009;34:277-8.
94. Cooper G, Dyas J, Krishna CV, et al. Successful use of intravenous fat emulsion in severe poisoning following ingestion of lipid soluble drugs. *Clin Toxicol (Phila)* 2010;48:298-.
95. Cordell CL, Schubkegel T, Light TR, et al. Lipid infusion rescue for bupivacaine-induced cardiac arrest after axillary block. *J Hand Surg Am* 2010;35A:144-6.
96. Dagtekin O, Marcus H, Muller C, et al. Lipid therapy for serotonin syndrome after intoxication with venlafaxine, lamotrigine and diazepam. *Minerva Anestesiol* 2011;77:93-5.
97. Dean P, Ruddy JP, Marshall S. Intravenous lipid emulsion in propranolol overdose. *Anaesthesia* 2010;65:1148-50.
98. Desai NN, Cherkas DS, Kim HK, et al. Rapid reversal of prolonged hemodynamic collapse due to multi-drug overdose using intravenous 20% fat emulsion. *Clin Toxicol (Phila)* 2012;50:364-.
99. Dix SK, Rosner GF, Nayar M, et al. Intractable cardiac arrest due to lidocaine toxicity successfully resuscitated with lipid emulsion. *Crit Care Med* 2011;39:872-4.
100. Dolcourt BA, Aaron CK. Intravenous fat emulsion for refractory verapamil and atenolol induced shock: a human case report. *Clin Toxicol (Phila)* 2008;46:619-20.
101. Ellsworth H, Stellpflug SJ, Cole JB, et al. A life-threatening flecainide overdose treated with intravenous fat emulsion. *Pacing Clin Electrophysiol* 2013;36:e87-9.

102. Engels PT, Davidow JS. Intravenous fat emulsion to reverse haemodynamic instability from intentional amitriptyline overdose. *Resuscitation* 2010;81:1037-9.
103. Espinet AJ, Emmerton MT. The Successful use of intralipid for treatment of local anesthetic-induced central nervous system toxicity. Some considerations for administration of intralipid in an emergency. *Clin J Pain* 2009;25:808-9.
104. Finn SDH, Uncles DR, Willers J, et al. Early treatment of a quetiapine and sertraline overdose with Intralipid(R). *Anaesthesia* 2009;64:191-4.
105. Foxall G, McCahon R, Lamb J, et al. Levobupivacaine-induced seizures and cardiovascular collapse treated with Intralipid (R). *Anaesthesia* 2007;62:516-8.
106. Franken A, Graham R, Levine M, et al. Delayed onset seizure and cardiac arrest following amitriptyline overdose, treated with intravenous lipid emulsion therapy. *Crit Care Med* 2010;38:U278-U.
107. Franxman TJ, Al-Nabhan M, Cavallazzi RS, et al. Lipid emulsion therapy for verapamil overdose. *Ann Intern Med* 2011;154:292-.
108. French D, Armenian P, Ruan WM, et al. Serum verapamil concentrations before and after Intralipid (R) therapy during treatment of an overdose. *Clin Toxicol (Phila)* 2011;49:340-4.
109. Gallagher C, Tan JM, Foster CG. Lipid rescue for bupivacaine toxicity during cardiovascular procedures. *Heart Int* 2010;5:e5.
110. Grenc D, Sarc L, Knafelj R, et al. Successful lipid emulsion treatment for generalized seizures and cardiac arrest following epidural lidocaine administration. *Clin Toxicol (Phila)* 2011;49:268-.
111. Haesendonck R, de Winter S, Verelst S, et al. Intravenous lipid emulsion for intentional chloroquine poisoning. *Clin Toxicol (Phila)* 2012;50:223.
112. Harchelroad FP, Palma A. Efficacy and safety of intravenous lipid therapy in a beta-blocker overdose. *Clin Toxicol (Phila)* 2008;46:634-.
113. Harvey M, Cave G, Chanwai G, et al. Successful resuscitation from bupivacaine-induced cardiovascular collapse with intravenous lipid emulsion following femoral nerve block in an emergency department. *Emerg Med Australas* 2011;23:209-14.
114. Hendron D, Menagh G, Sandilands EA, et al. Tricyclic antidepressant overdose in a toddler treated with intravenous lipid emulsion. *Pediatrics* 2011;128:e1628-32.
115. Hillyard SG, Barrera-Groba C, Tighe R. Intralipid reverses coma associated with zopiclone and veniafaxine overdose. *Eur J Anaesthesiol* 2010;27:582-3.
116. Jacob J, Heard K. Second case of the use of intravenous fat emulsion therapy for propafenone toxicity. *Clin Toxicol (Phila)* 2011;49:946-7.

117. Jakkala-Saibaba R, Morgan PG, Morton GL. Treatment of cocaine overdose with lipid emulsion. *Anaesthesia* 2011;66:1168-70.
118. Jang DH, Smith SW, Larocque A, et al. Euthasol overdose with cardiac arrest resuscitated with intravenous lipid emulsion. *Clin Toxicol (Phila)* 2011;49:253-.
119. Jelic T, Price J, Tenenbein M, et al. Novel use of intralipid in the treatment of severe baclofen toxicity. *Clin Toxicol (Phila)* 2012;50:584-5.
120. Jolliff HA, De Lucia AC, Thomas TN. Lipid emulsion in the treatment of diphenhydramine toxicity. *Clin Toxicol (Phila)* 2010;48:613-.
121. Jovic-Stosic J, Djordjevic S, Putic V, et al. Lipid emulsion in treatment of verapamil and benzodiazepine toxicity: clinical effects and serum concentrations. *Clin Toxicol (Phila)* 2012;50:363-.
122. Jovic-Stosic J, Gligic B, Putic V, et al. Severe propranolol and ethanol overdose with wide complex tachycardia treated with intravenous lipid emulsion: a case report. *Clin Toxicol (Phila)* 2011;49:426-30.
123. Kapadia KJ, Al-Duaij N, Ganetsky M, et al. Case series of severe TCA toxicity treated with intravenous fat emulsion. *Clin Toxicol (Phila)* 2010;48:612-.
124. Lange DB, Schwartz D, Daroza G, et al. Use of intravenous lipid emulsion to reverse central nervous system toxicity of an iatrogenic local anesthetic overdose in a patient on peritoneal dialysis. *Ann Pharmacother* 2012;46:e37.
125. Liang CW, Diamond SJ, Hagg DS. Lipid rescue of massive verapamil overdose: a case report. *J Med Case Rep* 2011;5:399.
126. Lin EP, Aronson LA. Successful resuscitation of bupivacaine-induced cardiotoxicity in a neonate. *Pediatr Anesth* 2010;20:955-7.
127. Litz RJ, Popp M, Stehr SN, et al. Successful resuscitation of a patient with ropivacaine-induced asystole after axillary plexus block using lipid infusion. *Anaesthesia* 2006;61:800-1.
128. Litz RJ, Roessel T, Heller AR, et al. Reversal of central nervous system and cardiac toxicity after local anesthetic intoxication by lipid emulsion injection. *Anesth Analg* 2008;106:1575-7.
129. Livshits Z, Feng Q, Chowdhury F, et al. Life-threatening bupropion ingestion: is there a role for intravenous fat emulsion? *Basic Clin Pharmacol Toxicol* 2011;109:418-22.
130. Lu JJ, Hast HA, Erickson TB. Dramatic QTc narrowing after Intralipid administration in quetiapine overdose. *Clin Toxicol (Phila)* 2009;47:740-.
131. Ludot H, Tharin JY, Belouadah M, et al. Successful resuscitation after ropivacaine and lidocaine-induced ventricular arrhythmia following posterior lumbar plexus block in a child. *Anesth Analg* 2008;106:1572-4.

132. Markowitz S, Neal JM. Immediate lipid emulsion therapy in the successful treatment of bupivacaine systemic toxicity. *Reg Anesth Pain Med* 2009;34:276-.
133. Marwick PC, Levin AI, Coetzee AR. Recurrence of cardiotoxicity after lipid rescue from bupivacaine-induced cardiac arrest. *Anesth Analg* 2009;108:1344-6.
134. McAllister RK, Tutt CD, Colvin CS. Lipid 20% emulsion ameliorates the symptoms of olanzapine toxicity in a 4-year-old. *Am J Emerg Med* 2012;30:1012e1-2.
135. McCutchen T, Gerancher JC. Early intralipid therapy may have prevented bupivacaine-associated cardiac arrest. *Reg Anesth Pain Med* 2008;33:178-80.
136. Meehan TJ, Gummin DD, Kostic MA, et al. Beta blocker toxicity successfully treated with intravenous fat emulsion: a case series. *Clin Toxicol (Phila)* 2009;47:735.
137. Mizutani K, Oda Y, Sato H. Successful treatment of ropivacaine-induced central nervous system toxicity by use of lipid emulsion: effect on total and unbound plasma fractions. *J Anesth* 2011;25:442-5.
138. Moussot PE, Marhar F, Minville V, et al. Use of intravenous lipid 20% emulsion for the treatment of a voluntary intoxication of flecainide with refractory shock. *Clin Toxicol (Phila)* 2011;49:514-.
139. Nair A, Protopapas M. Intralipid rescue in potentially lethal tricyclic overdose. *Basic Clin Pharmacol Toxicol* 2011;109:115-.
140. Nguyen VH, White JL. Further support for the early administration of lipid emulsion in the treatment of ropivacaine-induced central nervous system toxicity. *J Anesth* 2012;26:479-80.
141. Oakes JA, Piquette C, Barthold CL. Successful use of intravenous lipid as adjunctive therapy in a severe calcium channel antagonist poisoning. *Clin Toxicol (Phila)* 2009;47:755-6.
142. Oti C, Uncles D, Sable N, et al. The use of Intralipid for unconsciousness after a mixed overdose. *Anaesthesia* 2010;65:110-1.
143. Rosenblatt MA, Abel M, Fischer GW, et al. Successful use of a 20% lipid emulsion to resuscitate a patient after a presumed bupivacaine-related cardiac arrest. *Anesthesiology* 2006;105:217-8.
144. Sakai T, Manabe W, Kamitani T, et al. Ropivacaine-induced late-onset systemic toxicity after transversus abdominis plane block under general anesthesia: successful reversal with 20% lipid emulsion. *Masui* 2010;59:1502-5.
145. Schwarz ES, Halcomb SE, Sampson C, et al. Massive diphenhydramine overdose presenting with seizures and ventricular tachycardia rapidly improved with intralipid therapy. *Clin Toxicol (Phila)* 2012;50:364-.

146. Shah S, Gopalakrishnan S, Apuya J, et al. Use of Intralipid in an infant with impending cardiovascular collapse due to local anesthetic toxicity. *J Anesth* 2009;23:439-41.
147. Shih YH, Chen CH, Wang YM, et al. Successful reversal of bupivacaine and lidocaine-induced severe junctional bradycardia by lipid emulsion following infraclavicular brachial plexus block in a uremic patient. *Acta Anaesthesiol Taiwan* 2011;49:72-4.
148. 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* 2008;51:412-5.
149. Smith HM, Jacob AK, Segura LG, et al. Simulation education in anesthesia training: a case report of successful resuscitation of bupivacaine-induced cardiac arrest linked to recent simulation training. *Anesth Analg* 2008;106:1581-4.
150. Sonsino DH, Fischler M. Immediate intravenous lipid infusion in the successful resuscitation of ropivacaine-induced cardiac arrest after infraclavicular brachial plexus block. *Reg Anesth Pain Med* 2009;34:276-7.
151. Spence AG. Lipid reversal of central nervous system symptoms of bupivacaine toxicity. *Anesthesiology* 2007;107:516-7.
152. Stellpflug SJ, Cole JB, Dolan JA, et al. Life-threatening flecainide overdose treated with intravenous fat emulsion. *Clin Toxicol (Phila)* 2010;48:612-3.
153. Stellpflug SJ, Fritzlar SJ, Cole JB, et al. Cardiotoxic overdose treated with intravenous fat emulsion and high-dose insulin in the setting of hypertrophic cardiomyopathy. *J Med Toxicol* 2011;7:151-3.
154. Stellpflug SJ, Harris CR, Engebretsen KM, et al. Intentional overdose with cardiac arrest treated with intravenous fat emulsion and high-dose insulin. *Clin Toxicol (Phila)* 2010;48:227-9.
155. ten Tusscher BL, Beishuizen A, Girbes ARJ, et al. Intravenous fat emulsion therapy for intentional propafenone intoxication. *Clin Toxicol (Phila)* 2011;49:701.
156. Varela H, Bums SM. Use of lipid emulsions for treatment of local anesthetic toxicity: a case report. *AANA J* 2010;78:359-64.
157. Warren JA, Thoma RB, Georgescu A, et al. Intravenous lipid infusion in the successful resuscitation of local anesthetic-induced cardiovascular collapse after supraclavicular brachial plexus block. *Anesth Analg* 2008;106:1578-80.
158. Weinberg G, Di Gregorio G, Hiller D, et al. Reversal of haloperidol-induced cardiac arrest by using lipid emulsion. *Ann Intern Med* 2009;150:737-8.
159. Whiteside J. Reversal of local anaesthetic induced CNS toxicity with lipid emulsion. *Anaesthesia* 2008;63:203-4.

160. Wilson BJ, Cruikshank JS, Wiebe KL, et al. Intravenous lipid emulsion therapy for sustained release diltiazem poisoning: a case report. *J Popul Ther Clin Pharmacol* 2012;19:e218-22.
161. Wong GK, Joo DT, McDonnell C. Lipid resuscitation in a carnitine deficient child following intravascular migration of an epidural catheter. *Anaesthesia* 2010;65:192-5.
162. Worrall C, Cole J, Orozco B, et al. Intravenous fat emulsion (IFE) for refractory hypotension due to venlafaxine overdose. *Clin Toxicol (Phila)* 2012;50:584-.
163. Young AC, Velez LI, Kleinschmidt KC. Intravenous fat emulsion therapy for intentional sustained-release verapamil overdose. *Resuscitation* 2009;80:591-3.
164. Yurtlu BS, Hanci V, Gur A, et al. Intravenous lipid infusion restores consciousness associated with olanzapine overdose. *Anesth Analg* 2012;114:914-5.
165. Cole JB, Stellpflug SJ, Engebretsen KM. Asystole immediately following intravenous fat emulsion for overdose. *J Med Toxicol* 2014;10:307-10.