

THE LANCET

Supplementary appendix

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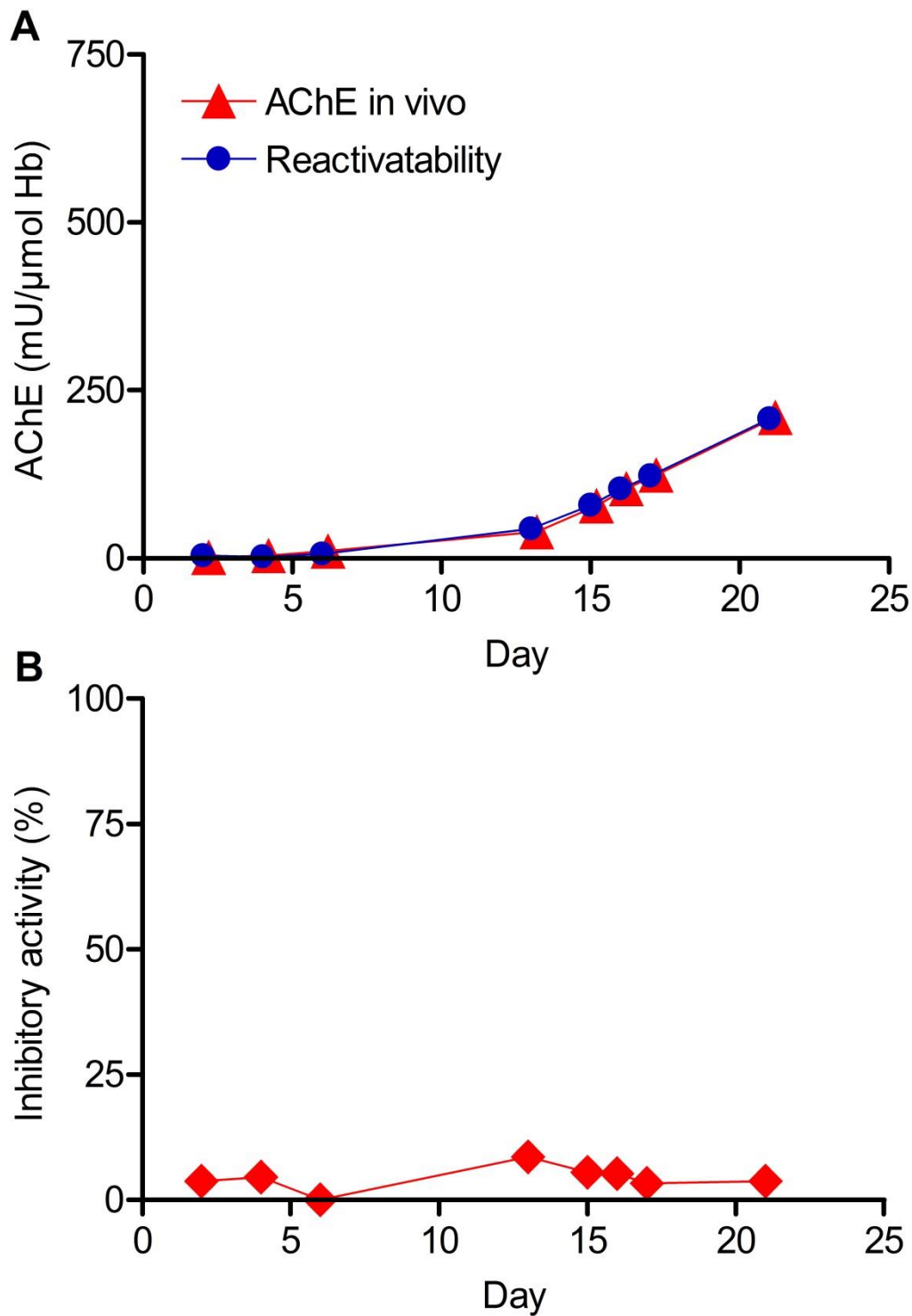
Supplement to: Steindl D, Boehmerle W, Körner R, et al. Novichok nerve agent poisoning. *Lancet* 2020; published online Dec 22. [http://dx.doi.org/10.1016/S0140-6736\(20\)32644-1](http://dx.doi.org/10.1016/S0140-6736(20)32644-1).

Parameter	Value	Reference range	Unit
Glucose	95	74-106	mg/dL
C-peptide	2.05	1.10-4.40	µg/L
Insulin	3.66	2.60-24.80	mU/L
TSH	1.60	0.27-4.20	mU/L
Plasma sodium	154	136-145	mmol/L
Plasma potassium	4.2	3.5-4.5	mmol/L
Plasma chloride	120	98-107	mmol/L
Plasma calcium	2.21	2.15-2.50	mmol/L
Creatinine	0.91	0.70-1.20	mg/dL
Cystatin c	0.98	0.47-1.09	mg/L
eGFR cystatin	87.6		mL/min
Urea	40	17-48	mg/dL
Creatine kinase	169	<190	U/L
Creatine kinase-MB	49.7	<24.0	U/L
High-sensitivity troponin T	16	<14	ng/L
Myoglobin	462	28-72	µg/L
Bilirubin	0.26	<1.20	mg/dL
Alanine aminotransferase	18	<41	U/L
Alkaline phosphatase	70	40-130	U/L
Gamma glutamyl transferase	16	8-61	U/L
Albumin	31.9	35.0-52.0	g/L
Butyryl cholinesterase	0.42	5.32-12.92	kU/L
Lactate dehydrogenase	261	135-250	U/L
Amylase	385	28-100	U/L
Lipase	111	13-60	U/L
C-reactive protein	47.8	<5.0	mg/L
Procalcitonin	0.32	<0.5	µg/L
Total leukocytes	16.56	3.9-10.5	/nL
Neutrophils	14.29	1.50-7.70	/nL
Erythrocytes	4.0	4.3-5.8	/pL
Haemoglobin	12.2	13.5-17.0	g/dL
Haematocrit	0.351	0.395-0.505	1/1
Platelets	273	150-370	/nL
INR	1.24	0.9-1.25	
aPTT	36.3	26.0-40.0	s
Urinary protein/creatinine ratio	295	<140	mg/g
Urinary albumin/creatinine ratio	25	<20	mg/g

Appendix S1: Laboratory values on admission.

Substance	Urine	Blood
Fentanyl	positive	positive
Sufentanil	positive	positive
Morphine	positive	negative
Ofloxacin	positive	negative
Levofloxacin	positive	positive
Atropine	positive	negative
Gabapentin	positive	negative
Urapidil	positive	negative
Amantadine	positive	negative
Pilocarpine	positive	negative
Lithium	not performed	positive
Rocuronium	positive	negative
Alcohol	not performed	negative
Diazepam	negative	positive
Nordazepam	positive	positive
Oxazepam	positive	negative
Temazepam	positive	positive
Gamma-hydroxybutyrate	negative	not performed
Pentobarbital	negative	positive
Thiopental	negative	positive

Appendix S2: Results of local toxicology and medication tests in blood and urine samples obtained on arrival of the patient at Charité – Universitätsmedizin Berlin (day 3). A hair sample obtained on day 4 confirmed the presence of several of the compounds detected in blood and urine and, in addition, revealed the presence of Tropicamide. Results of toxicology analyses conducted in a special laboratory of the armed forces are not included.



Appendix S3. Repetitive determination of the cholinesterase status in patient blood.⁴ The timeline is given in days after the supposed poisoning of the patient. (A) RBC-AChE activity in whole blood dilutions (AChE in vivo) and after incubation of whole blood dilutions with 100 μM obidoxime ex vivo (reactivatability). (B) The presence of a cholinesterase inhibitor was determined by incubation of patient plasma with test AChE (inhibitory activity).

Parameter	Unit	Reference range	Days																											
			3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	28	30	33	42
Creatine kinase	U/L	<190	169	939	442	131	48	44	36	47	89	73	126	75	135	129	88	67	40	31	..	..	..	..	..	..	33	..	22	33
High-sensitivity troponin T	ng/L	<14	16	29	21	15	10	9	..	9	12	9	..	12	15	11	12	15	18	16	16	..	..	..	..	..	..	..	..
Alanine aminotransferase	U/L	<41	18	22	18	15	16	22	35	40	49	48	52	44	37	46	53	80	80	97	83	..	56	50	38	36	29	25	21	19
Alkaline phosphatase	U/L	40-130	70	59	56	60	95	180	197	238	270	180	166	160	143	133	111	111	107	111	107	..	90	90	87	93	92	87	..	76
Gamma glutamyl transferase	U/L	8-61	16	16	17	28	43	135	239	321	410	349	347	297	285	276	254	235	228	221	189	..	162	168	143	147	121	120	93	59
Albumin	g/L	35-0-52-0	31.9	29.0	29.2	23.3	25.2	29.1	25.4	29.3	30.8	29.2	29.4	29.6	29.1	..	..	32.8	34.9	32.1	..	..	34.7	37.2	34.5	37.1	37.6	..	39.4	47.3
Butyryl cholinesterase	kU/L	5-32-12-92	0.41	0.71	1.34	1.20	2.97	2.93	2.74	3.21	3.59	3.75	4.09	4.32	4.57	4.88	4.76	5.22	5.28	5.45	5.49	5.23	5.94	6.32	6.03	6.80	7.06	..	6.80	..
Lipase	U/L	13-60	111	44	19	11	16	31	..	43	44	41	33	37	49	127	148	176	121	172	..	189	..	113	..	..	..	..	..
C-reactive protein	mg/L	<5-0	48	95	138	324	353	255	252	293	278	182	134	129	116	89	85	69	57	49	33	20	15	12	7	5	4	1	1	<0.6
Procalcitonin	µg/L	<0.5	0.32	0.28	0.20	2.77	3.95	2.53	1.64	1.14	0.76	0.59	0.51	0.37	0.25	0.17	0.17	0.15	0.16	0.14	0.10	0.07	0.05	0.04	0.04	0.03	..	..	..	..
Total leukocytes	/nL	3.9-10.5	16.6	6.95	5.15	9.43	10.3	9.03	11.1	10.9	11.1	9.54	9.57	11.9	12.7	13.4	9.2	10.1	10.9	8.98	8.43	7.38	7.34	8.02	6.84	6.89	6.97	6.71	7.46	5.6
Haemoglobin	g/dL	13.5-17.0	12.2	11.9	11.2	10.0	9.9	8.0	8.0	8.2	8.4	8.1	7.9	8.1	7.7	7.7	7.5	8.6	8.8	8.7	8.8	8.5	9.3	9.3	9.2	10.8	11.2	11.4	11.8	12.9
Platelets	/nL	150-370	273	273	189	161	196	177	206	264	334	395	450	536	576	621	661	755	821	763	782	714	774	733	651	716	659	533	435	322
Urinary protein/creatinine ratio	mg/g	<140	295	..	..	..	..	337	422	..	..	..	..	..	288	..	..	..	..	..	..	..	..	..	..	..	..	..	..	72
Urinary albumin/creatinine ratio	mg/g	<20	25	..	..	..	..	21	16	..	..	..	..	..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9

Appendix S4: Laboratory findings during the ICU stay at Charité (days 3-25), the subsequent stay on a regular hospital ward (days 26-33) and a subsequent visit as an outpatient.