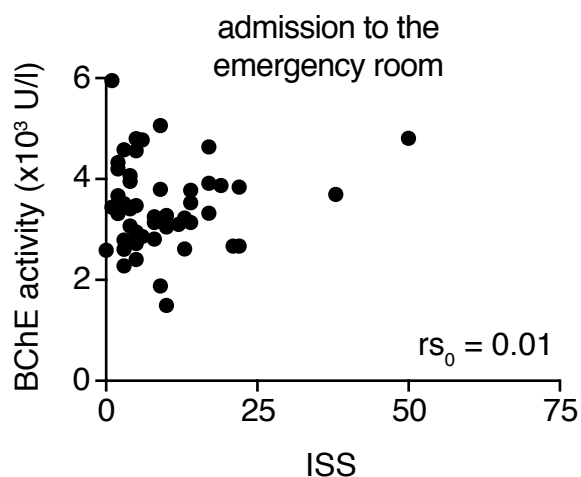
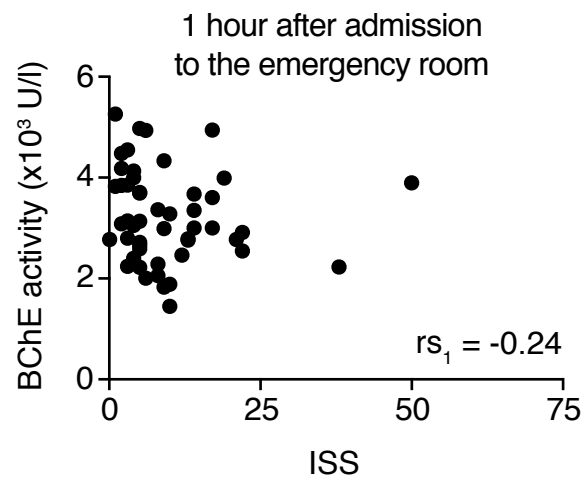


Blood sample stability testing. Blood samples were taken at the day 0 (initial value) and kept at +4°C for 9 days. BChE measurements were performed daily for 9 days. BChE activities were measured and the coefficient of variation (CV) for all samples was calculated. Panel represents a summary with the mean CV (7.01%) of all samples over 9 days.

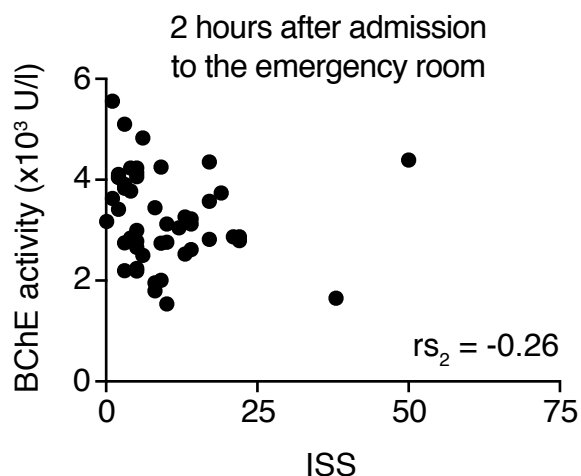
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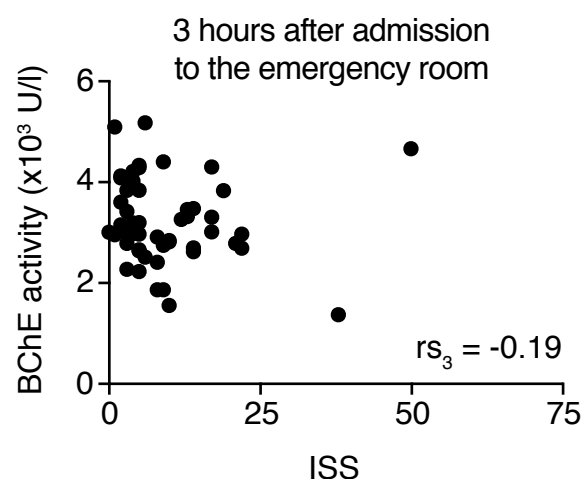
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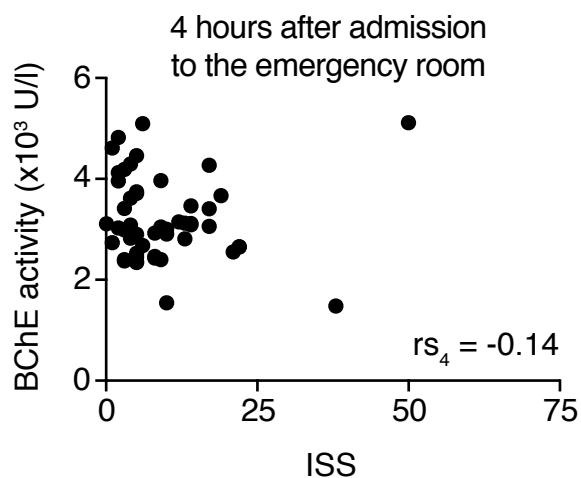
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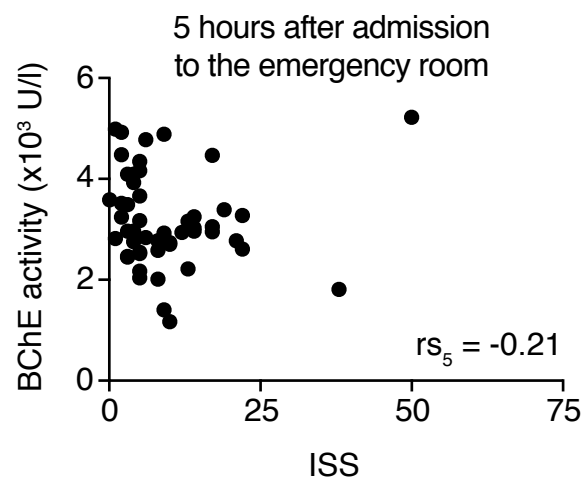
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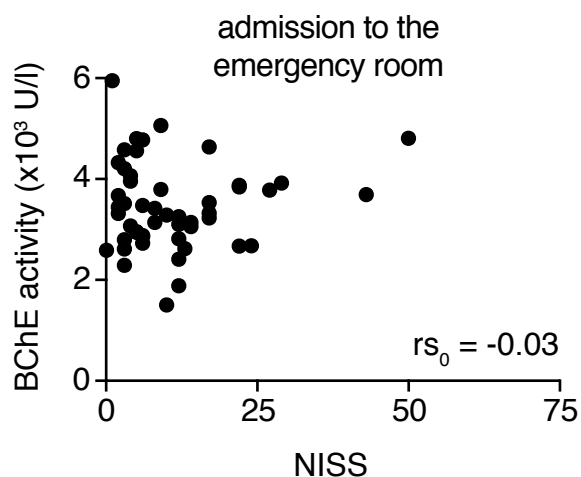


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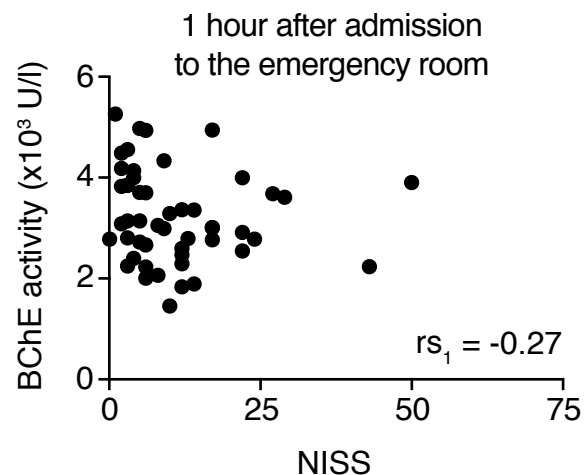


No correlation between the butyrylcholinesterase (BChE) activity and the ISS of patients admitted to the emergency unit after traumatic injury. (a-f) Scatter plots represent BChE activity measured at the admission, as well as during the first five hours following admission to the hospital. rs_{0-5} : Spearman's rank correlation coefficient.

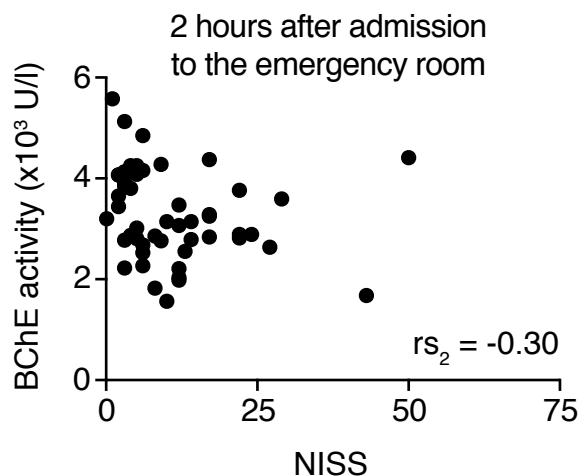
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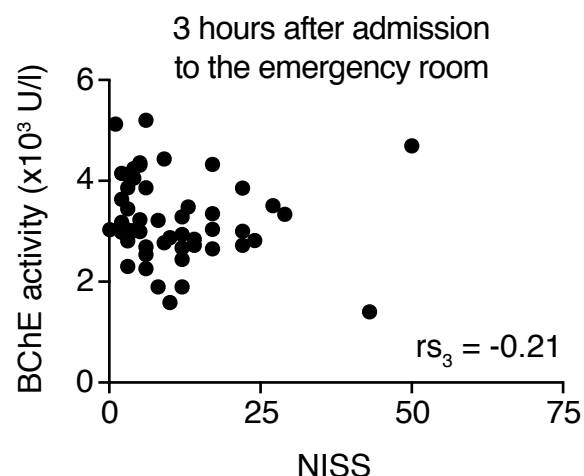
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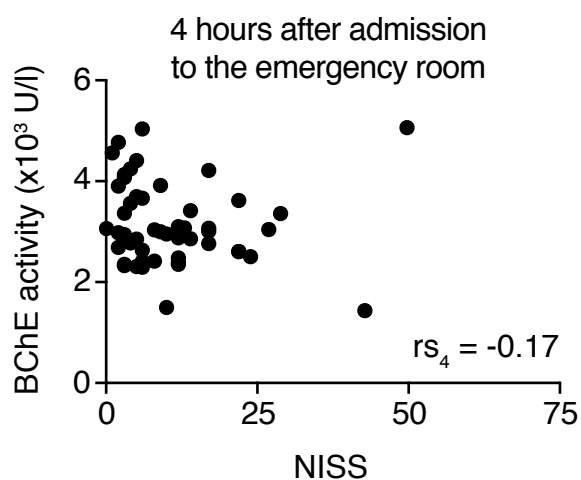
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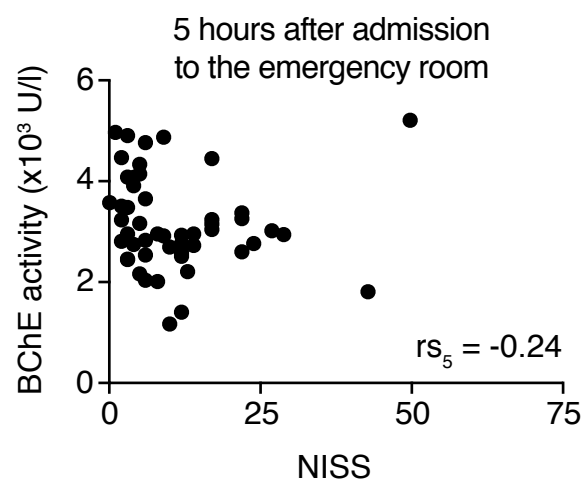
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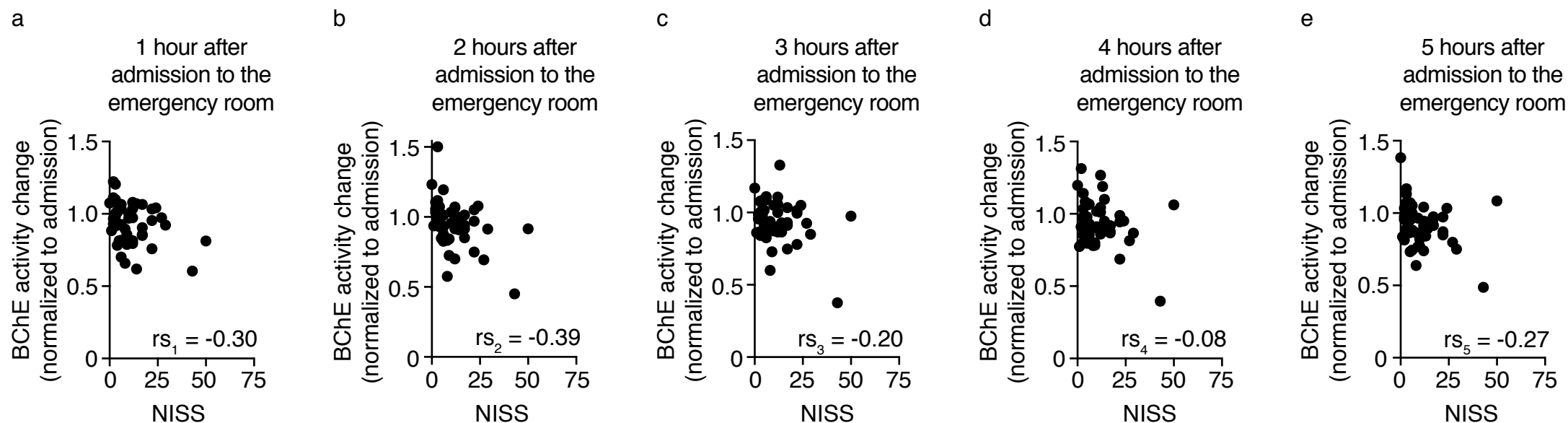
f



No correlation between Butyrylcholinesterase (BChE) activity and the New Injury Severity Score (NISS) of patients admitted to the emergency unit after traumatic injury.

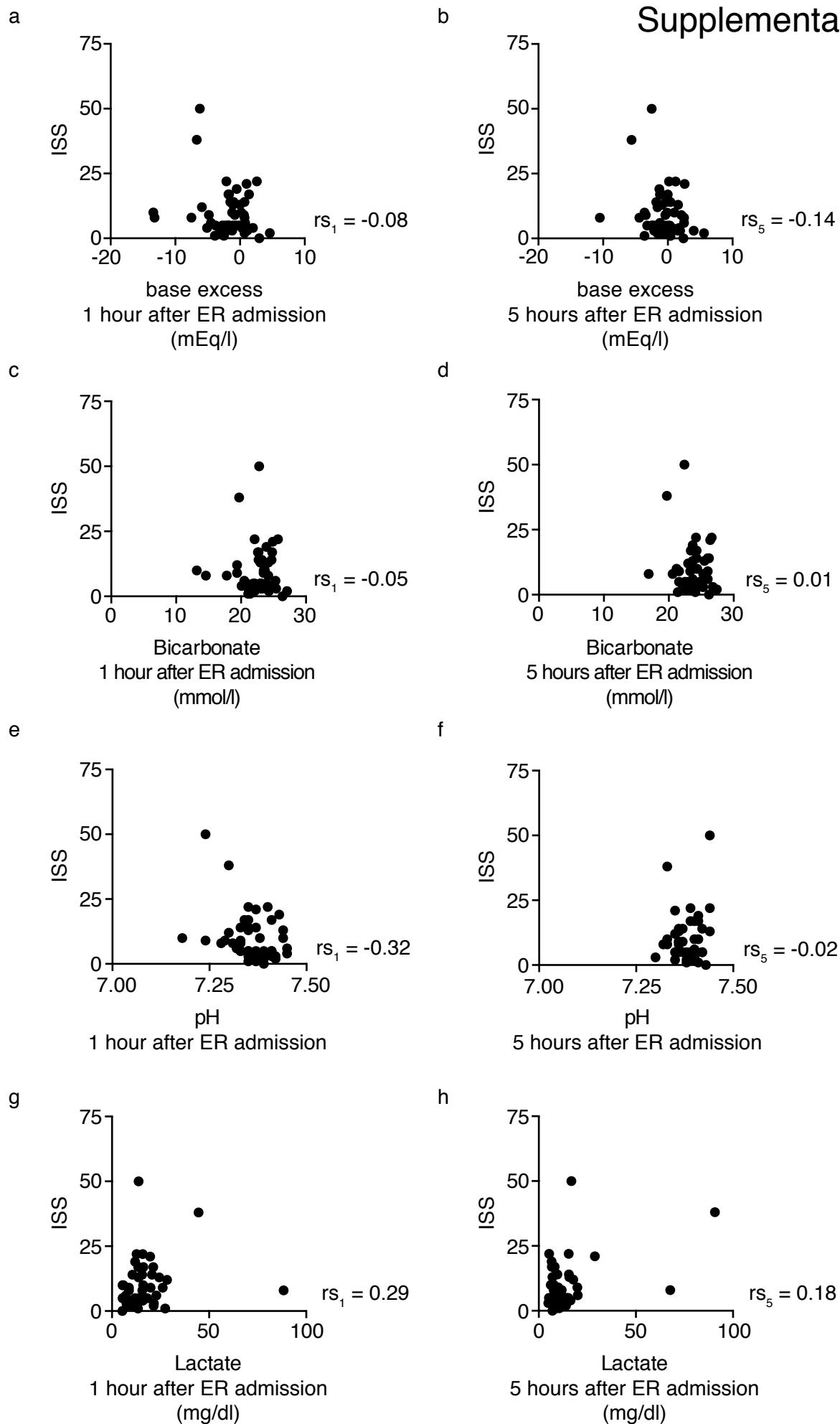
(a-f) Scatter plots represent BChE activity measured at the admission, as well as during the first five hours following admission to the hospital.

rs₀₋₅: Spearman's rank correlation coefficient.

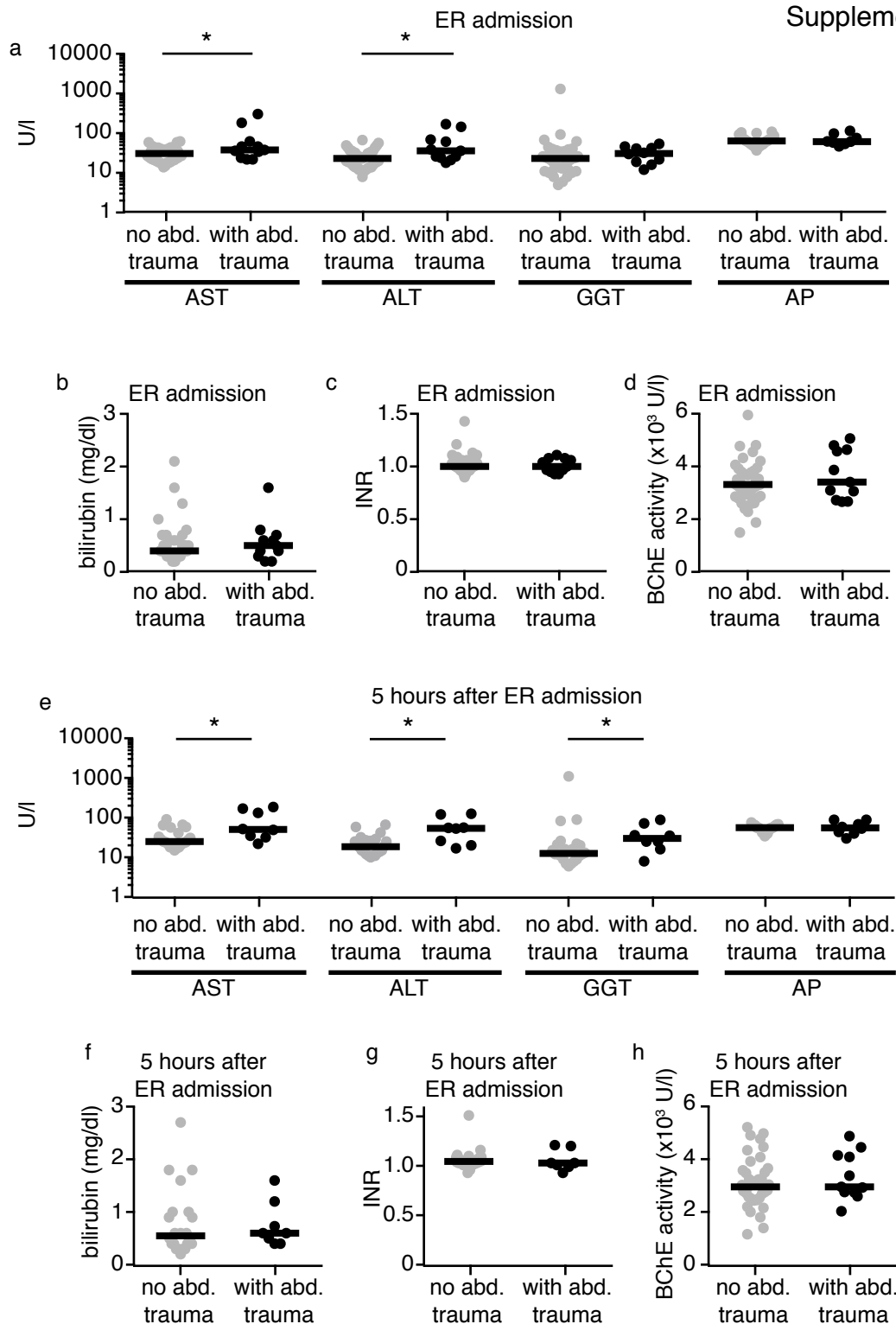


Correlation between the relative change of the butyrylcholinesterase (BChE) activity and the New Injury Severity Score (NISS) of patients admitted to the emergency unit after traumatic injury. BChE activity change correlated with the NISS when measured one and two hours after admission to the emergency room (a and b, respectively). The correlation was lost when measured three, four and five hours after admission. rs_{1-5} : Spearman's rank correlation coefficient.

Supplementary figure 5

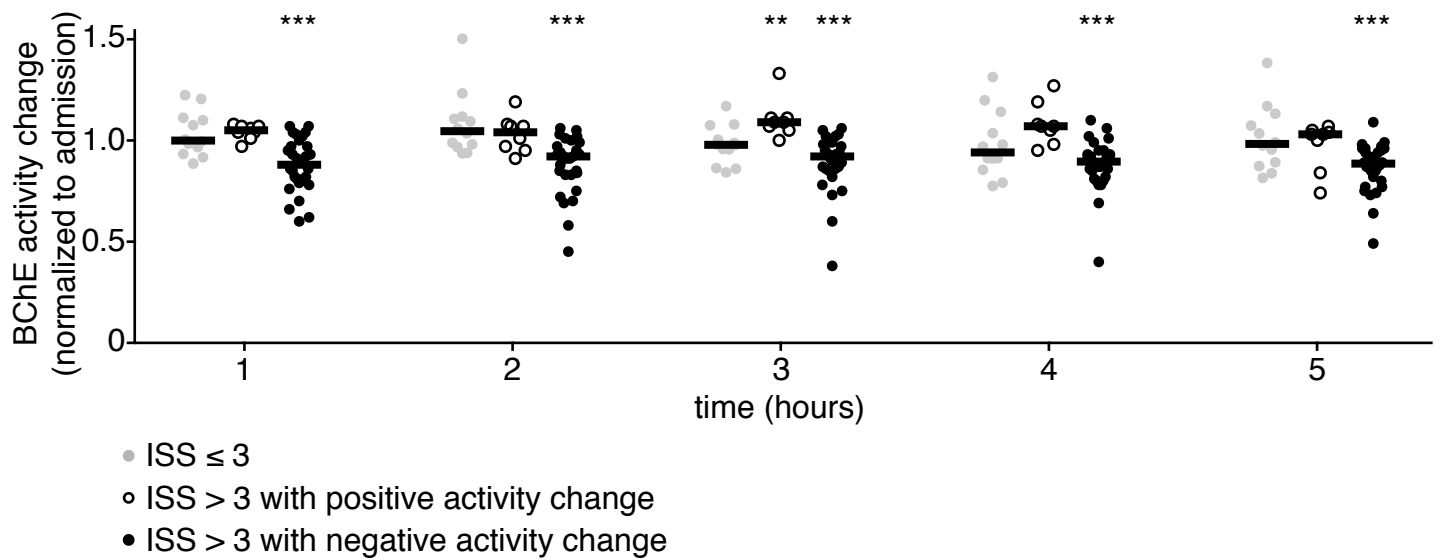


Correlation between the relative change of the butyrylcholinesterase (BChE) activity and the New Injury Severity Score (NISS) of patients admitted to the emergency unit after traumatic injury. BChE activity change correlated with the NISS when measured one and two hours after admission to the emergency room (a and b, respectively). The correlation was lost when measured three, four and five hours after admission. rs1-5: Spearman's rank correlation coefficient.



Abdominal trauma does not affect BChE activity. Liver function tests are obtained at the admission to the emergency room (a, b, c,) and five hours later (e, f, g) from patients without (grey circles) and those with abdominal trauma (black circles). AST and ALT serum concentrations were higher in the group of patients with abdominal trauma measured at both time points (a, e). GGT concentration was elevated in the group of patients with abdominal trauma when measured five hours after admission (e). AP (a, e), bilirubin (b, f) and INR (c, g) values did not differ between the groups when measured at the admission or five hours later. The mean values of all measured liver function tests in both patient groups stayed within standard laboratory range. BChE activity did not differ between the groups (d, h).

* $p < 0.05$, Mann-Whitney test. abd: abdominal; AST: aspartate-aminotransferase; ALT: alanine-aminotransferase; GGT: gamma-glutamyl transferase; AP: alkaline phosphatase; INR: international normalized ratio.



Bidirectional BChE activity changes in patients with traumatic injury. Patients were divided into 2 groups based on the relative change in their BChE activity: positive activity change (open circles) and negative activity change (closed circles). For pattern recognition protocol see Materials and Methods section. Scatter plots are individual measurements, horizontal lines represent medians. * p < 0.05; ** p < 0.01; *** p < 0.001. Observed BChE activity change has been tested using Friedman test for repeated measures followed by Dunn's multiple comparisons test.

Results summary (Supplementary tables 1-4) Tables show measured values from all tests performed in this study. Data are presented as median (interquartile range - IQR).

Supplementary Table 1					
Results summary					
	volunteers	ISS ≤ 3	ISS > 3	ISS > 3 with positive activity change	ISS > 3 with negative activity change
BChE activity (x10³ U/l)	3468 (3232-3863)	3478 (2656-4297)	3265 (2869-3883)		
BChE activity change after 1 hour		1.0 (0.94-1.1)	0.93 (0.81-1.0)	1.1 (1.0-1.1)	0.88 (0.80-0.98)
BChE activity change after 2 hours		1.0 (0.97-1.1)	0.93 (0.85-1.0)	1.0 (0.96-1.1)	0.92 (0.83-0.98)
BChE activity change after 3 hours		0.98 (0.89-1.1)	0.94 (0.87-1.0)	1.1 (1.1-1.1)	0.92 (0.86-0.98)
BChE activity change after 4 hours		0.94 (0.87-1.1)	0.92 (0.85-1.0)	1.1 (1.0-1.2)	0.90 (0.82-0.94)
BChE activity change after 5 hours		0.98 (0.88-1.1)	0.90 (0.81-0.97)	1.0 (0.88-1.0)	0.89 (0.79-0.95)
median (IQR)					

Supplementary Table 2		
Results summary		
	ISS ≤ 3	ISS > 3
CRP at the ER admission (mg/l)	1 (1-3)	1 (1-4)
CRP 5 hours after ER admission (mg/l)	6 (1-13)	4 (1-6)
CRP 24 hours after ER admission (mg/l)	11 (10-24)	31 (16-51)
CRP 72 hours after ER admission (mg/l)		65 (24-147)
WBCC at the ER admission (nl ⁻¹)	9.7 (7.4-12.0)	9.8 (7.2-14.0)
WBCC 5 hours after ER admission (nl ⁻¹)	9.9 (8.3-16.0)	10.0 (9.2-13.0)
WBCC 24 hours after ER admission (nl ⁻¹)	11.0 (9.3-12.0)	8.5 (6.8-9.8)
WBCC 24 hours after ER admission (nl ⁻¹)		7.7 (6.7-9.8)
median (IQR)		

Supplementary Table 3		
Results summary		
	1 hour after ER admission	5 hours after ER admission
base excess (mEq/l)	-1.2 (-2.8—0.7)	-0.5 (-1.9—1.1)
bicarbonate (mmol/l)	23 (22–24)	24 (23–25)
pH	7.4 (7.3–7.4)	7.4 (7.4–7.4)
lactate (mg/dl)	14 (9–20)	9 (7–15)
median (IQR)		

Supplementary Table 4				
Results summary				
	ER admission		5 hours after ER admission	
	no abdominal trauma	with abdominal trauma	no abdominal trauma	with abdominal trauma
AST (U/l)	27 (21-40)	38 (24-62)	25 (20-49)	51 (33-161)
ALT (U/l)	23 (14-34)	36 (24-69)	19 (13-28)	54 (22-104)
GGT (U/l)	23(12-35)	31 (18-43)	13 (9-21)	30 (18-63)
AP (U/l)	64 (51-80)	62 (55-93)	56 (45-65)	56 (41-83)
bilirubin (mg/dl)	0.4 (0.3-0.6)	0.5 (0.3-0.7)	0.6 (0.4-1.0)	0.6 (0.4-1.1)
INR	1.0 (0.96-1.0)	1.0 (0.95-1.1)	1.0 (1.0-1.1)	1.0 (0.99-1.2)
BChE activity (x10³ U/l)	3314 (2858-3841)	3414 (2722-4640)	2955 (2534-3577)	2953 (2744-4152)
median (IQR)				