

SUPPLEMENTAL MATERIAL

Data S1.

Supplemental Methods

Rib-cage injury definitions: Fractures were characterized as “segmental” when ≥ 2 fractures were identified on the same rib; and “displaced” when there was one full shaft-width displacement. For angle measurements, an anteroposterior line was drawn traversing from the midline sternum to the posterior rib line (a line tangential to the posterior margin of the ribcage). Angles were measured from the midpoint of the anteroposterior line to the fracture, such as to create three sectors on the sagittal plane: 0 - 72° (anterolateral), 72 - 108° (lateral), and 108 - 180° (posterolateral). For segmental fractures, only the location of the anterior-most fracture was recorded as that would be more relevant for determination of possible early surgical intervention. Surgical consultation for consideration of early stabilization was suggested for fractures satisfying any of the following radiographic criteria: 3 \geq displaced, 3 \geq contiguous segmental (“radiographic flail chest”), or 3 \geq continuous bilateral anterior or costochondral (“radiographic flail sternal segment”) rib fractures, or for displaced sternal fractures.

Table S1. Distribution of resuscitation-associated injuries according to survival to discharge.

Type of resuscitation-associated injury	Survival to discharge		
	Yes (n=44)	No (n=60)	p
Any post-resuscitation injury	33/44 (75%)	51/60 (85%)	0.218
Time-critical*	5/44 (11%)	10/60 (17%)	0.576
Liver/spleen laceration	3 (7%)	3 (5%)	0.696
Pneumothorax	3 (7%)	2 (3%)	0.648
Mediastinal hemorrhage, active extravasation	0 (0%)	1 (2%)	1.000
Hemopericardium	0 (0%)	1 (2%)	1.000
Pulmonary laceration	1 (2%)	2 (3%)	1.000
Vascular access hemorrhage	0 (0%)	1 (2%)	1.000
Mainstem bronchus intubation	0 (0%)	2 (3%)	0.507
Not time-critical*	32/44 (73%)	48/60 (80%)	0.481
Mediastinal hematoma w/o active extravasation	2 (5%)	7 (12%)	0.296
Pulmonary contusion	6 (14%)	8 (13%)	1.000
Rib fractures	30 (68%)	47 (78%)	0.265

Displaced	6 (14%)	10 (17%)	0.787
Meets surgical stabilization screening criteria	17 (39%)	28 (47%)	0.431
3 ≥ displaced rib fractures	0 (0%)	3 (5%)	0.261
Flail chest	0 (0%)	1 (2%)	1.000
Flail sternal segment	15 (34%)	27 (45%)	0.314
Mean number of rib fractures per patient	4.0 ± 4.4	5.7 ± 4.7	0.034
Sternal Fracture	4 (9%)	15 (25%)	0.043
Displaced	2 (5%)	4 (7%)	1.000

*Data are expressed as n and % of patients with each injury type; some patients had more than one injury.

Table S2. Distribution of resuscitation-associated injuries according to utilization of mechanical CPR.

Type of resuscitation-associated injury	Mechanical CPR		
	Yes (n=28)	No (n=76)	p
Any post-resuscitation injury	25/28 (89%)	59/76 (78%)	0.263
Time-critical*	6/28 (21%)	9/76 (12%)	0.224
Liver/spleen laceration	3 (11%)	3 (4%)	0.340
Pneumothorax	2 (7%)	3 (4%)	0.609
Mediastinal hemorrhage, active extravasation	0 (0%)	1 (1%)	1.000
Hemopericardium	1 (4%)	0 (0%)	0.269
Pulmonary laceration	1 (4%)	2 (3%)	1.000
Vascular access hemorrhage	0 (0%)	1 (1%)	1.000
Mainstem bronchus intubation	1 (4%)	1 (1%)	0.468
Not time-critical*	24/28 (86%)	56/76 (74%)	0.294
Mediastinal hematoma w/o active extravasation	5 (18%)	4 (5%)	0.057
Pulmonary contusion	6 (21%)	8 (11%)	0.195
Rib fractures	23 (82%)	54 (71%)	0.319

Displaced	6 (21%)	10 (13%)	0.360
Meets surgical stabilization screening criteria	12 (43%)	33 (43%)	1.000
3 ≥ displaced rib fractures	0 (0%)	3 (4%)	0.562
Flail chest	0 (0%)	1 (1%)	1.000
Flail sternal segment	9 (32%)	33 (43%)	0.370
Mean number of rib fractures per patient	5.4 ± 4.0	4.9 ± 4.8	0.595
Sternal Fracture	10 (36%)	9 (12%)	0.009
Displaced	5 (18%)	1 (1%)	0.005

*Data are expressed as n and % of patients with each injury type; some patients had more than one injury.