

TABLE S1. Classification of AGI

Grade	Definition
0	no acute gastrointestinal injury
I	The function of the gastrointestinal tract is partially impaired, expressed as gastrointestinal symptoms related to a known cause, and perceived as transient. Examples: postoperative absence of bowel sounds during the first day after surgery, then return after that.
II	The gastrointestinal tract is not able to perform digestion and absorption adequately to satisfy the nutrient and fluid requirements of the body. There are no changes in general condition of the patient related to gastrointestinal problems. Examples: Stop defecating for 3 consecutive days or more, diarrhea, intra-abdominal hypertension (IAH) grade I (IAP 12-15 mm Hg). Feeding intolerance is present if at least 20 kcal/kg per day via enteral route cannot be reached within 72 h of feeding attempt but can be reached after 72h.
III	Loss of gastrointestinal function, and restoration of gastrointestinal function is not achieved despite interventions, and the general condition is not improving. Examples: Despite treatment, feeding intolerance is persisting, progression of IAH to grade II (IAP 15-20 mm Hg), stress ulcer develop.
IV	AGI has progressed to become directly and immediately life-threatening, with worsening of multiple organ dysfunction syndrome and shock. Examples: GI bleeding leading to hemorrhagic shock, abdominal compartment syndrome requiring decompression.

TABLE S2. The analysis about Baseline Characteristics and Physiologic Measures of patients by AGI grades.

	0+I + II ^a n (%)	III + IV ^b n (%)	P
Sample size, n (%)	137 (68.8)	62 (31.2)	-
Age, y, mean (SD)	38.0 (16.3)	42.1 (16.8)	0.113
gender			0.001
female	14 (43.8)	18 (56.2)	
male	123 (73.7)	44 (26.3)	
mode of injury			0.017
vehicle accidents	62 (62.0)	38 (38.0)	
fall from height	37 (72.5)	14 (27.5)	
Assault or fall of objects	24 (70.6)	10 (29.4)	
others	14 (100.0)	0 (0.0)	
GCS classification			0.002
Severe (GCS 3-8)	43 (55.1)	35 (44.9)	
moderate (GCS 9-12)	22 (68.8)	10 (31.2)	
mild (GCS 13-15)	72 (80.9)	17 (19.1)	
injured regions			<0.001
frontal lobe	26 (47.3)	29 (52.7)	
temporal lobe	40 (78.4)	11 (21.6)	
occipital lobe	7 (53.8)	6 (46.2)	
Diffuse brain injury	16 (66.7)	8 (33.3)	
others	48 (85.7)	8 (14.3)	

a AGI 0, I and II.

b Acute gastrointestinal failure.

TABLE S3. The analysis about complications of the patients by AGI grades.

	0+I + II ^a n (%)	III + IV ^b n(%)	χ^2 or t	P
Sample size, n (%)	137(68.8)	62(31.2)	-	-
Serum sodium (mmol/L)			$\chi^2=24.731$	<0.001
130-155	133 (74.3)	46 (25.7)		
<130 or >155	4 (20)	16 (80)		
serum potassium (mmol/L)			$\chi^2=0.811$	0.368
3.0-6.0	125 (69.8)	54 (30.2)		
<3.0 or >6.0	12 (60)	8 (40)		
pulmonary infection	66 (54.1)	56 (45.9)	$\chi^2=31.964$	<0.001
intracranial infection	21 (48.8)	22 (51.2)	$\chi^2=10.237$	0.003

a AGI 0, I and II.

b Acute gastrointestinal failure.

TABLE S4 Logistic regression analysis of risk factors when AGI III or IV was considered as a result variable.

covariate	B	SE	Wald	df	sig	OR	95% CI	
							Lower	Upper
Gender (man vs. women)	-2.149	0.589	13.297	1	< 0.001	0.117	0.037	0.370
GCS classification			6.173	2	0.046			
moderate vs. severe	-0.426	0.587	0.528	1	0.467	0.653	0.207	2.061
minor vs. severe	1.196	0.627	3.642	1	0.056	3.307	0.968	11.296
injured regions			9.617	4	0.047			
temporal lobe vs. frontal lobe	-0.238	0.664	0.128	1	0.720	0.788	0.214	2.900
occipital lobe vs. frontal lobe	-0.492	0.63	0.609	1	0.435	0.612	0.178	2.102
diffuse brain injury vs. frontal lobe	1.417	0.869	2.658	1	0.103	4.124	0.751	22.649
others vs. frontal lobe	-1.826	0.889	4.216	1	0.040	0.161	0.028	0.920
Serum sodium (<130 or >155 vs. 130-155)	-2.733	0.800	11.661	1	0.001	0.065	0.014	0.312
pulmonary infection vs. no pulmonary infection	-2.511	0.584	18.505	1	< 0.001	0.081	0.026	0.255
intracranial infection vs. no intracranial infection	-1.577	0.548	8.282	1	0.004	0.207	0.071	0.605

TABLE S5. The association between the AGI grades and Patient Outcomes.

	0+I + II ^a n (%)	III + IV ^b n(%)	z 或 χ^2	P
ICU length of stay, d, median	6	18	3.534	<0.001
GOS (Glasgow Outcome Scale)			8.285	0.007
GOS 1-3 (%)	25 (52.1)	23 (47.9)		
GOS 4-5 (%)	112 (74.2)	39 (25.8)		

a AGI 0, I and II.

b Acute gastrointestinal failure.