Supplementary Table 1 Disease severity distribution by Etiology, *n* (%)

Etiology	*n*	Severe acute pancreatitis	Acute Physiology and Chronic Health Evaluation II score (mean ± SD)	Modified atlanta classification (mild)
Hypertriglyceridemic-AP	53	28 (52.8)	10.5 ± 3.8	13 (24.5)
Biliary AP	123	45 (36.6)	8.7 ± 3.2	53 (43.1)
Alcoholic AP	46	16 (34.8)	9.1 ± 3.5	18 (39.1)
Others	23	9 (39.1)	8.9 ± 3.1	9 (39.1)
P value	-	0.046	0.018	0.041

AP: Acute pancreatitis.

Supplementary Table 2 Time from symptom onset to hospital admission, *n* (%)

Time interval	Total cohort (*n* = 245)	SAP (*n* = 98)	Non-SAP (*n* = 147)	*P* value
< 6 hours	78 (31.8)	35 (35.7)	43 (29.3)	0.283
6-12 hours	89 (36.3)	38 (38.8)	51 (34.7)	0.512
12-24 hours	51 (20.8)	18 (18.4)	33 (22.4)	0.437
24-48 hours	27 (11.0)	7 (7.1)	20 (13.6)	0.112
Median (interquartile range), hours	8.5 (4-16)	8.0 (4-14)	9.0 (4-17)	0.285

Patients admitted within 24 hours: 218 (89.0%). SAP: Severe acute pancreatitis.

Supplementary Table 3 Intra-abdominal pressure-procalcitonin risk-stratified management protocol

Risk level	Intra-abdominal pressure (mmHg)	Procalcitonin (ng/mL)	Key management strategies
Low	< 10.5	< 0.92	Standard monitoring (q8h), conventional fluid therapy, ward care
Moderate-low	≥ 10.5	≥ 0.92	Enhanced monitoring (q4-6h), restrictive fluids, albumin maintenance

Moderate-high	≥ 10.5	≥ 0.92	Intensive monitoring (q2-4h), empirical antibiotics, nasogastric decompression
High	≥ 15	≥ 3.0	Intensive care unit care, mechanical ventilation optimization, abdominal compartment syndrome management

Note on etiology-specific interventions: Etiology-specific management included insulin-heparin/plasmapheresis for hypertriglyceridemic acute pancreatitis (when triglycerides > 1000 mg/dL), early endoscopic retrograde cholangiopancreatoscopy for biliary acute pancreatitis (AP) with cholangitis, and thiamine/withdrawal prophylaxis for alcoholic AP. This table represents observed practice patterns from our retrospective analysis, not a validated prospective protocol.