

Severe Acute Pancreatitis in the era of Lumen-Apposing Metal Stents (LAMS) – Critical Care Outcomes from a large UK centre

Introduction:

Outcomes from severe acute pancreatitis remain poor and are often associated with prolonged critical care stays. Management requires a multidisciplinary approach and over the last decade management of one of the main complications (pancreatic fluid collections) has increasingly involved endoscopic drainage via a Lumen-Apposing Metal Stent (LAMS). We have looked at our outcomes, compared cohorts with and without LAMS and offered potential new service standards for managing these complex cases.

Methods:

Retrospective observational study of patients admitted to the adult Critical Care Unit at Manchester Royal Infirmary with SAP between 01/01/2019 and 01/01/2022 using Intensive Care National Audit & Research Centre (ICNARC) data and electronic patient records.

Results:

There were 96 admissions during 90 hospital episodes with a median admission APACHE II Scores of 14. LAMS insertion was undertaken in 32%. Mean time to insertion was 49 days after initial presentation. Percutaneous drainage was undertaken in 30% and surgical management in 11%.

Major bleeding was observed in 13% of LAMS patients and 10% of those without. 90% of LAMS patients were discussed in a specialist MDT, 84% underwent CT imaging within 7 days prior to LAMS insertion and 26% underwent deep microbiological sampling via the LAMS.

Median total hospital length of stay was 68 days and mortality at ultimate hospital discharge was 23%.

Conclusion:

Critically ill patients with SAP have a long length of stay. Mortality rates are in keeping with predicted APACHE II scores. Technological advances have created a need for new optimized treatment pathways, auditable by adherence to validated standards of care.

		Overall	No LAMS	LAMS Group
N		96	65	31
Sex (%)	F	29 (30)	22 (34)	7 (23)
	M	67 (70)	43 (66)	24 (77)
Age (mean (SD))		52 (14)	52 (15)	52 (12)
Source Of Admission (%)	Other Hospital	43 (45)	23 (35)	20 (65)
	Emergency Department	19 (20)	18 (28)	1 (3)
	Ward	30 (31)	20 (31)	10 (32)
	Theatre	4 (4)		
Pre-hospital dependency (%)	Able to live without assistance in daily activities	70 (73)	48 (74)	22 (71)
	Minor assistance with some daily activities	18 (19)	10 (15)	8 (26)
	Major assistance with majority of/all daily activities	8 (8)	7 (11)	1 (3)
Ethnicity (%)	White	71 (74)	48 (74)	23 (74)
	Asian or Asian British	7 (7)	4 (6)	3 (10)
	Black or black British	5 (5)	4 (6)	1 (3)

	Other ethnic group	1 (1)	1 (2)	0 (0)
	Not stated	11 (11)	7 (11)	4 (13)
BMI (mean (SD))		31 (9)	32 (10)	31 (6)
BMI category (%)	<18.5	1	1 (2)	0 (0)
	18.5-24.9	22	18 (28)	4 (13)
	25-29.9	19	10 (15)	9 (29)
	30-39.9	43	27 (42)	16 (52)
	40+	11	9 (14)	2 (7)
Cause Of Pancreatitis (%)	Alcohol	27 (28)	18 (28)	9 (29)
	Gallstones	45 (47)	30 (46)	15 (48)
	Hyperlipidaemia	5 (5)	2 (3)	3 (10)
	Idiopathic	8 (8)	7 (11)	1 (3)
	Other	3 (3)	3 (5)	0 (0)
	Trauma	6 (6)	4 (6)	2 (7)
	Drugs	2 (2)	1 (2)	1 (3)
APACHE II score, median, [IQR]		14 [10, 20]	14 [11, 21]	14 [10, 19]
APACHE II mortality prediction (mean (SD))		23 (19)	24 (21)	21 (15)

Table 1a. Baseline Characteristics

		Overall	No LAMS	LAMS
Time from diagnosis to LAMS, days, (mean (SD))		na	na	49 (46)
Discussion at formal MDT, (%)	Discussed	62 (63)	34 (51)	28 (90)
	Not discussed	36 (37)	33 (49)	3 (10)
CT ≤ 7 days prior to LAMS insertion, (%)		na	na	26 (84)
Microbiology samples collected via LAMS		na	na	8 (26)
Microbiology growth from Abdomen (drain/ LAMS/ open):				
	Polymicrobial	20 (20)	13 (19)	7 (23)
	Monomicrobial	8 (8)	4 (6)	4 (13)
	No growth	7 (7)	4 (6)	3 (10)
	No data	64 (65)	46 (69)	18 (58)
Time on Antibiotics (days), median [IQR]		6 [3, 17]	6 [2, 14]	10 [6, 26]
Required supplemental nutrition (NG/NJ/TPN), (%)		69 (70)	42 (63)	27 (87)
	-TPN	21 (21)	9 (13)	12 (39)

Complications, (%)	-NJ	29 (30)	11 (16)	18 (58)
-Minor bleeding		7 (7)	5 (8)	2 (6)
-Major bleeding		10 (10)	6 (9)	4 (13)
Intervention required for bleeding (OGD/ Interventional radiology), (%)		10	5	5
Blood Transfusion during Critical Care Admission, (%)		50 (52)	30 (46)	20 (65)
PRBC volume received in transfused patients (n=50), (ml), median [IQR]		1080 [504, 3849]	1053 [495, 3849]	1235 [617, 3665]
Other abdominal interventions required, (%)	Percutaneous Drainage	29 (30)	16 (25)	13 (42)
	Surgery	11 (11)	9 (14)	2 (6)

Table 1b. Main Results and interventions

		Overall	No LAMS	LAMS
Unit stay (days), median [IQR]		8 [3, 19]	6 [3, 14]	9 [5-34]
Unit outcome (%)	Lived	82 (85)	54 (83)	28 (90)
	Died	14 (15)	11 (17)	3 (10)
Outcome on ultimate hospital discharge(n=90) (%)	Lived	69 (77)	43 (73)	26 (84)
	Died	21 (22)	16 (27)	5 (16)
Total LOS across all hospitals (days), median [IQR] (n=90)		68 [20, 96]	39 [13, 80]	84 [70, 111]

Table 1c. Outcomes