

Outcomes and Predictors of Management Strategies Following Percutaneous Cholecystostomy for Acute Cholecystitis

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INTRODUCTION

Percutaneous cholecystostomy (PCT) is frequently used for acute cholecystitis in high-risk surgical patients, yet optimal post-tube management remains unclear. Only 30–55% proceed to definitive surgery. This study evaluates management patterns and outcomes after PCT at a single institution and identifies predictors of benefit from interval cholecystectomy.

METHODS

A retrospective cohort study of 257 patients (2014–2025) at Anne Arundel Medical Center who underwent PCT for acute cholecystitis. Demographics, comorbidities, timing, and outcomes were reviewed. Management was classified as interval cholecystectomy, tube removal, tube maintenance, or death with tube. Subgroup analyses compared surgical vs. non-operative management and race (Black vs White). Significance: $p < 0.05$.

RESULTS

Variable	Interval Cholecystectomy (n = 81)	No Cholecystectomy (n = 150)	p-value
Chronic Kidney Disease	8.6 %	26.7 %	0.001
Prior Stroke	7.4 %	17.3 %	0.037
Acute Cholecystitis on Presentation	87.7 %	76.7 %	0.044
Length of Stay (days)	6.6	11.5	<0.001
ERCP Performed	8.6 %	20.0 %	0.025
Non-routine Discharge	22.2 %	38.0 %	0.015
Tube Maintenance	4.9 %	14.7 %	0.026
Death with Tube	0 %	6.7 %	0.016
Variable	White (n = 183)	Black (n = 50)	p-value
Chronic Kidney Disease	16.9 %	34.0 %	0.008
Prior Stroke	10.9 %	22.0 %	0.041
ICU Admission	19.1 %	32.0 %	0.051
Mortality (Any)	10.4 %	20.0 %	0.068
Interval Cholecystectomy Rate	32.8 %	30.0 %	0.709

DISCUSSION

Interval cholecystectomy was associated with shorter hospitalization and fewer complications. CKD and prior stroke predicted non-operative management and worse outcomes. Black patients had significantly higher comorbidities and near-significant increases in ICU admission and mortality, suggesting potential disparities. These findings align with prior data emphasizing individualized management after PCT.

CONCLUSION

Management after PCT varies widely. Interval cholecystectomy offers superior outcomes, while non-operative care carries higher tube dependence and mortality. Significant comorbidity differences and racial trends highlight the need for risk-stratified, equitable decision-making. Developing a predictive model may identify patients who benefit most from surgery while guiding safe non-operative care.