

Serial Lipase Measurement Prolongs Hospitalization in Patients with Acute Pancreatitis

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Introduction

- Acute pancreatitis (AP) is one of the most common gastrointestinal indications for inpatient admission
- Serial serum lipase measurement has negligible value in gauging clinical course or prognosis in AP
- The American Society for Clinical Pathology, AGA, and ACG recommend against routine repeat lipase measurement after initial diagnosis of AP
- Despite professional guidelines, repeat serum lipase testing (RLT) is routinely performed with combined direct and indirect costs attributed to testing alone exceeding \$30 million

Aims:

- Understand the frequency of RLT
- Assess the impact of RLT on length of hospitalization
- Identify factors associated with RLT

Methods

- Retrospective study of adults ≥ 18 years of age with a diagnosis of AP based on ICD-10 code and/or serum lipase $>3x$ ULN from March 2019-April 2021.
 - Charts manually reviewed to confirm accurate diagnosis of AP
- Logistic regression used to assess factors associated with multiple lipase measurements during hospitalization
- Linear regression model built to identify effect of RLT on duration of hospitalization

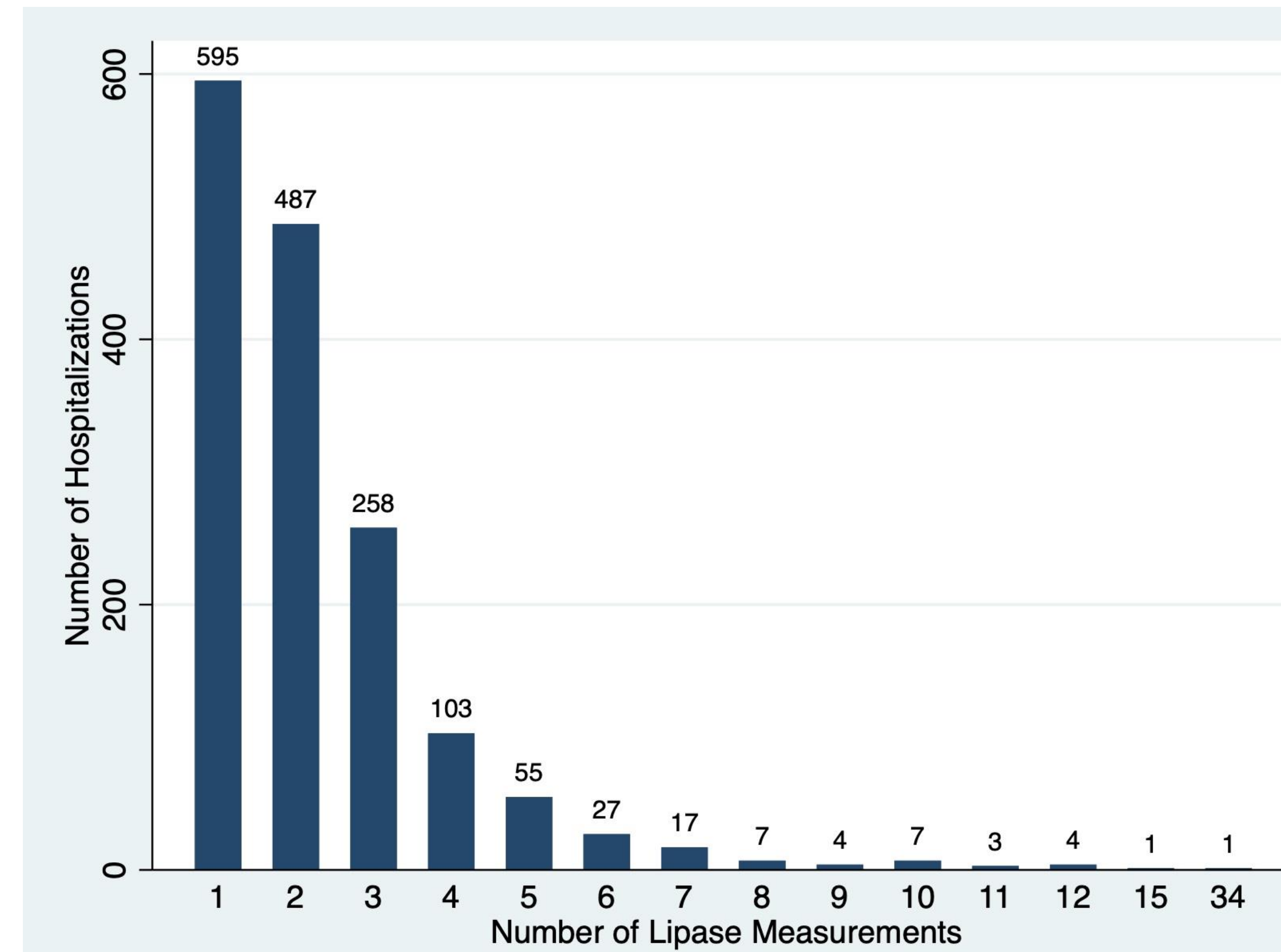


Figure 1. Distribution of lipase measurements per hospitalization

Variable	Single Lipase Measurement, n=595 Mean (Standard Deviation) or n (%)	Multiple Lipase Measurements, n=974 Mean (Standard Deviation) or n (%)	p-value
Length of hospitalization (days)	5.76 (6.3)	8.1 (13.4)	< 0.01
Intensive care unit hospitalization	193 (32.4)	355 (36.5)	0.11
Age (years)	56.5 (17.4)	55.1 (17.9)	0.14
Female gender	240 (40.3)	449 (46.1)	0.03
Race			
Black/African-American	158 (26.5)	246 (25.3)	0.40
Caucasian	357 (60.0)	573 (58.8)	
Other/Not Listed	80 (13.5)	155 (15.9)	
Ethnicity			
Hispanic	95 (16.0)	165 (16.9)	0.14
Non-Hispanic	496 (83.3)	808 (83.0)	
Other/Not Listed	4 (0.7)	1 (0.1)	

Table 1. Factors associated with multiple serum lipase measurements

Results

- 1,569 hospitalizations with AP ICD-10 codes were identified.
- 62.1% of hospitalizations (974 patients) had more than one lipase measurement (Figure 1).
- Female patients were more likely to have RLT for AP. ($P < 0.03$).
- Patient age, race, and ethnicity not associated with RLT (Table 1).
- Length of stay (LOS) for AP increased with advanced age.
- LOS was significantly longer among ICU patients (mean 11.5 days, 95% CI 10.1-12.9) vs. non-ICU (mean 4.9 days, 95% CI 4.5-5.3).
- LOS was significantly longer in RLT patient cohort after controlling for ICU stay and age ($p < 0.01$).

Conclusions

More than 2/3 of the patients hospitalized with AP had repeat lipase measurements.

Serial lipase measurement in AP is associated with significantly prolonged LOS.

Future studies should evaluate provider and hospitalization factors associated with RLT.

Quality improvement initiatives are needed to reduce unnecessary RLT.

References

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