

A clinical audit comparing amylase and lipase requesting in suspected acute pancreatitis

Annie Elizabeth Cook^{1,2}, Thumeka Portia Jalavu³ and Annalise Edith Zemlin³

1. Clinical Biochemistry, Derriford Combined Laboratory, University Hospitals Plymouth NHS Trust, UK

2. Clinical Biochemistry, Berkshire and Surrey Pathology Services, Royal Surrey NHS Foundation Trust, UK

3. Division of Chemical Pathology, Faculty of Medicine and Health Sciences, Stellenbosch University and National Health Laboratory Services Tygerberg Hospital, South Africa

Introduction

The internationally accepted revised Atlanta classification (2012)¹ for the diagnosis of acute pancreatitis (AP), requires two of the three following features to be present: characteristic abdominal pain, raised serum amylase and/or lipase enzymes >3 times the upper limit of normal (ULN), or consistent imaging results. The aim of this clinical audit was to evaluate the respective suitability of amylase or lipase as first-line diagnostic biomarkers in cases of suspected AP, for the local population served by Tygerberg hospital, Cape Town.



Methods

A retrospective analysis of all amylase and/or lipase requests in a month (n=222) was performed. The patient population in this audit included individuals being managed at Tygerberg hospital and where laboratory testing for amylase and lipase had been performed on site. Amylase and lipase results for these patients were reviewed alongside respective patient clinical details and any related imaging performed. A diagnosis of AP was considered confirmed if 2 of the 3 Atlanta criteria were fulfilled or in most cases, by an explicit statement provided in the clinical notes. From this the relative sensitivity and specificity of amylase, lipase and dual requesting for the diagnosis of AP was calculated, using the recommended cut-off of >3ULN.

Table 1: The sensitivity and specificity for amylase, lipase and dual requests for these analytes.

	Sensitivity (%) for Diagnosis of AP	Specificity (%) for Diagnosis of AP
Amylase	50.0	98.6
Lipase	90.0	96.9
Dual requests for amylase and lipase	83.3	97.4

Results

Results are summarised in table 1 and show that lipase has a diagnostic sensitivity of 90% compared to 50% for amylase. Specificity was shown to be very similar for amylase (98.6%) and lipase (96.9%). Dual requesting of these biomarkers showed limited improvement in either sensitivity (83.2%) or specificity (97.4%) compared with lipase alone but accounted for 25% of requests.

Conclusion

The results of this clinical audit support a growing body of evidence that lipase is superior as a first-line test for suspected AP and that there is little additional clinical value derived from dual requesting of lipase and amylase analytes. Despite the small subset of data used within this audit, we have shown that the sensitivity and specificity of lipase and amylase was consistent with previous study of these biomarkers within the Tygerberg population², and that lipase is the superior biomarker in terms of sensitivity. It is therefore recommended that dual requests for amylase and lipase are replaced by singular lipase requests where AP is suspected.

References:

1. Banks, P. A. *et al.* Classification of acute pancreatitis--2012: revision of the Atlanta classification and definitions by international consensus. *Gut* **62**, 102–11 (2013).
2. Hofmeyr, S., Meyer, C. & Warren, B. L. Serum lipase should be the laboratory test of choice for suspected acute pancreatitis. *South African J. Surg.* (2014). doi:10.7196/SAJS.2003

Contact:

annie.cook2@nhs.net