Normal lipase serum level in acute pancreatitis: a case report

T Cartier, P Sogni, F Perruche, O Meyniard, Y-E Claessens, J-F Dhainaut and G Der Sahakian

Emerg. Med. J. 2006;23;701-702
doi:10.1136/emj.2006.037655

Updated information and services can be found at:
http://emj.bmjournals.com/cgi/content/full/23/9/701

References

These include:

This article cites 4 articles, 1 of which can be accessed free at:
http://emj.bmjournals.com/cgi/content/full/23/9/701#BIBL

Rapid responses

You can respond to this article at:
http://emj.bmjournals.com/cgi/eletter-submit/23/9/701

Email alerting service

Receive free email alerts when new articles cite this article - sign up in the box at the top right corner of the article

Topic collections

Articles on similar topics can be found in the following collections

Other accident and emergency medicine (1772 articles)
Pancreas and biliary tract (403 articles)

Notes

To order reprints of this article go to:
http://www.bmjournals.com/cgi/reprintform

To subscribe to Emergency Medicine Journal go to:
http://www.bmjournals.com/subscriptions/
Normal lipase serum level in acute pancreatitis: a case report

T Cartier, P Sogni, F Perruche, O Meyniard, Y-E Claessens, J-F Dhainaut, G Der Sahakian

Diagnosis of acute pancreatitis relies on clinical symptoms and increase of serum lipase within 48 hours. We report the case of a patient admitted in the emergency department with a 24 hour history of acute abdominal pain. A computed tomography (CT) scan revealed an acute pancreatitis in spite of the lipase serum level being normal.

CASE REPORT

An 84 year old man was referred to our emergency department because of recurrent diffuse abdominal pain and vomiting for 24 hours. He had a history of type 1 diabetes mellitus, dysarthria, and left hemiplegia related to ischaemic stroke. He has previously been operated for suspected bowel related sepsis. He also had been treated for bladder polyps 2 years ago, and had had a left nephrectomy for unknown purpose. His current treatment included subcutaneous insulin, dalteparin (2500 U/day), omeprazole (20 mg/day), and venlafaxine (75 mg/day). He was not an alcoholic and did not smoke.

On examination the patient had a temperature of 36.9 °C, blood pressure 152/90 mm Hg, heart rate 116 beats/min, and a moderate tachypnea. He had jaundice, distension, and diffuse pain of the abdomen that did not radiate and was not relieved by movement. Rectal examination was normal. His main laboratory results were: white blood cell count 11 900 × 10^9; C-reactive protein 169 mg/l; creatinine 261 μmol/l; glucose 31.7 mmol/l; arterial pH 7.39; partial pressure of carbon dioxide 25.3 mm Hg; carbon dioxide level 19 mmol/l; bilirubin 88 μmol/l; γ-glutamyl transferase 1.040 U/l; alkaline phosphatase 156 U/l; aspartate aminotransferase 1.040 U/l; alanine aminotransferase level 19 mmol/l; lactate dehydrogenase 1.014 U/l. Serum lipase was in the normal range (44 U/l; normal 5–60 U/l).

An abdominal x ray revealed fecal impaction and gastric gas distension. Abdomen ultrasound was not informative because of gas interposition. A CT scan of the abdomen revealed acute inflammation involving the pancreas and peripancreatic fat, with fluid collection in the left renal area, gallstones, and thin biliary ducts.

The patient's management included pain relief with intravenous morphine, insulin, saline infusion, and insertion of a nasogastric catheter. The patient was subsequently admitted to the gastroenterology unit. Subsequent lipase level readings remained in normal range. At day 7, he underwent endoscopic retrograde cholangiopancreatography (ERCP), which revealed gallstones in the neck of and inside the gallbladder; the biliary duct was stented. The lipase level increased to 103 U/l two days after the procedure. At day 16, a second ERCP allowed sphincterotomy for gallstone removal. The patient died of cardiac arrest after the procedure. Necropsy was not performed.

DISCUSSION

The gold standard for diagnosis of acute pancreatitis includes suggestive clinical features with elevation of lipase within 48 hours above threefold the normal range, assisted by radiological investigation when necessary. Lipase is a 48 kD enzyme involved in digestion and mainly secreted by exocrine pancreas. During acute pancreatitis, serum lipase increases within four to eight hours, peaks at 24 hours, and remains elevated for one to two weeks, with a half-life between 7 and 14 hours. It is excreted by the ductal system and kidneys. Thus, impaired renal function leads to an increased level of lipase. In routine practice, lipase levels can be useful for physicians in the detection of this disorder.

A recent review of the literature reported that the estimated negative predictive value of lipase was between 94% and 100% (table 1). So a normal lipase level is relevant to rule out diagnosis of acute pancreatitis. However, the lipase level was not related to severity, suggesting that severe pancreatitis could be associated with initial lipase above normal range and below the usual threefold threshold. Our patient had clinical and radiological evidence of acute pancreatitis and fulfilled several severity criteria; he developed an acute renal failure with metabolic acidosis and the CT scan revealed D stage according to the Balthazar scale. Although all the conditions were associated, our patient had no increase of serum lipase until ERCP was performed. This is unusual; a perusal of the literature revealed a single case of asymptomatic postoperative pancreatitis with normal serum lipase, serum amylase, and urinary amylase, which was diagnosed on a CT scan taken for another indication.

Table 1: Value of serum lipase in the diagnosis of acute pancreatitis

<table>
<thead>
<tr>
<th>Authors</th>
<th>No of patients</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Positive predictive value</th>
<th>Negative predictive value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treacy, et al, 2001</td>
<td>328</td>
<td>67</td>
<td>97</td>
<td>80</td>
<td>94</td>
</tr>
<tr>
<td>Gumaste, et al, 1993</td>
<td>170</td>
<td>100</td>
<td>99</td>
<td>99</td>
<td>100</td>
</tr>
<tr>
<td>Panteghini and Pogani, 1989</td>
<td>54</td>
<td>100</td>
<td>81</td>
<td>93</td>
<td>100</td>
</tr>
<tr>
<td>Hemingway, et al, 1988</td>
<td>20</td>
<td>100</td>
<td>96</td>
<td>95</td>
<td>100</td>
</tr>
<tr>
<td>Steinberg, et al, 1985</td>
<td>216</td>
<td>87</td>
<td>99</td>
<td>95</td>
<td>97</td>
</tr>
</tbody>
</table>
Acute pancreatitis is frequently encountered in the emergency room, and the diagnosis is usually based on clinical and laboratory data. On the basis of our atypical findings, we stress the possibility of acute pancreatitis presenting without a rise in blood lipase levels.

Authors’ affiliations
T Cartier, F Perruche, O Meyniard, Y-E Claessens, J-F Dhainaut, G Der Sahakian, Paris Descartes University, Faculty of Medicine; Assistance Publique—Hôpitaux de Paris; Department of Emergency Medicine, Hôpital Cochin, Paris, France
P Sogni, Paris Descartes University, Faculty of Medicine; Assistance Publique—Hôpitaux de Paris; Department of Gastroenterology, Hôpital Cochin, Paris, France

Competing interests: none declared

Correspondence to: Dr G Der Sahakian, Department of Emergency Medicine, Hôpital Cochin, 27 rue du Faubourg Saint-Jacques F-75679 Paris Cedex 14, France; guillaume.der-sahakian@cch.aphp.fr

Accepted for publication 20 April 2006

REFERENCES
3 Lankisch PG, Burchard-Reckert S, Lethnick D. Underestimation of acute pancreatitis: patients with only a small increase in amylase/lipase levels can also have or develop severe acute pancreatitis. Gut 1999;44:542–44.