

**Please read this bit first**

The HPCSA and the Med Tech Society have confirmed that this clinical case study, plus your routine review of your EQA reports from Thistle QA, should be documented as a "Journal Club" activity. This means that you must record those attending for CEU purposes. Thistle will **not** issue a certificate to cover these activities, nor send out "correct" answers to the CEU questions at the end of this case study.

The Thistle QA CEU No is: **MT00025**.

Each attendee should claim **THREE** CEU points for completing this Quality Control Journal Club exercise, and retain a copy of the relevant Thistle QA Participation Certificate as proof of registration on a Thistle QA EQA.

## February 2008

### High Amalyse

#### Case 1:

A 49-year-old man with chronic renal failure (on haemodialysis) presented with acute central abdominal pain. He was seen by a surgeon who gave him a differential diagnosis of: acute pancreatitis, acute appendicitis, small gut obstruction, peritonitis. A plasma amylase estimation was ordered.

#### Plasma

Na	137 mmol/L	(132-144)
K	4.8 mmol/L	(3.2-4.8)
Cl	106 mmol/L	(98-108)
HCO <sub>3</sub>	21 mmol/L	(23-33)
Urea	35 mmol/L	(3.0-8.0)
Creat	0.81 mmol/L	(0.06-0.12)
Amylase	600 U/L	(<300)

A provisional diagnosis of acute pancreatitis was considered and the patient was treated conservatively. Over the next 8 hours the pain increased in intensity and migrated towards the right iliac fossa. A second plasma amylase estimation gave 560 U/L. A laporotomy was performed and an acutely inflamed appendix was removed. Two days postoperatively the plasma amylase was 620 U/L.

#### Comment

The kidney is the major route of excretion of amylase and plasma levels are increased in renal failure but usually to less than three-fold the upper reference limit.

## Case 2:

A 22-year-old woman with unstable diabetes mellitus presented in a confused state complaining of severe abdominal pain and persistent vomiting. In addition to the usual plasma electrolyte, urea and glucose estimations, a plasma amylase was also ordered because of the possibility of acute pancreatitis.

## Plasma

Na	137 mmol/L	(132-144)
K	6.4 mmol/L	(3.2-4.8)
Cl	98 mmol/L	(98-108)
HCO <sub>3</sub>	8.0 mmol/L	(23-33)
Urea	16.5 mmol/L	(3.0-8.0)
Creat	0.21 mmol/L	(0.06-0.12)
Glucose	24.0 mmol/L	(3.0-5.5)
Amylase	2560 U/L	(<300)

She was treated appropriately for her diabetic ketoacidosis and conservatively for her abdominal pain ( ? acute pancreatitis). The next day her pain had subsided and her plasma amylase was 1250 U/L.

## Comment

About 60% of patients with severe diabetic ketoacidosis will have a raised plasma amylase level, often up to ten times the normal value; and these patients also often complain of abdominal pain. The source of the amylase is obscure as is the origin of the abdominal pain. It is thought not to be pancreas-related because in many of these cases the raised amylase is of the salivary isoenzyme type.

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## CPD Questions:

### Case 1:

1. Why did this patient have abdominal pain?
2. Why was his (plasma) amylase elevated?

### Case 2:

1. What test or tests can be used to differentiate salivary from pancreatic amylase?
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