

AUDIT STANDARDS FOR PLEURAL AND ASCITIC FLUIDS

PLEURAL FLUID ANALYSIS

1. Local risk assessment regarding specimen collection and handling in the laboratory should be carried out in each Trust.
2. Samples should ideally be collected into heparin tubes to prevent clot formation. Samples for glucose should be adequately preserved with fluoride. Samples for pH should be collected anaerobically into a heparinised blood gas syringe.
3. Blood stained samples are not suitable for analysis of total protein and LDH.
4. All samples should be centrifuged prior to analysis.
5. To distinguish exudates from transudates if the patient's serum total protein is normal and the pleural fluid protein is less than 25g/L the fluid is a transudate. If the pleural fluid protein is greater than 35g/L the fluid is an exudate.

If the pleural fluid protein is between 25 and 35 g/L Lights criteria can be used.

Lights criteria state:

A pleural fluid is classified as an exudate if it meets one or more of the following criteria:

Pleural fluid total protein /serum total protein ratio >0.5

Pleural fluid LDH/serum LDH ratio >0.6

Pleural fluid LDH $> 66\%$ of the upper limit of normal of the serum LDH method.

Note: If no simultaneous serum sample is received then pleural fluid total protein and LDH may be sufficient to distinguish between an exudates and a transudate. If the pleural fluid protein is between 25 and 35 g/L: the pleural fluid is an exudate if pleural fluid LDH greater than 66% of the upper limit of normal of the serum LDH method.

6. Pleural fluid pH may be useful in aiding decisions about drainage of a parapneumonic effusion. pH should be measured anaerobically on a blood gas analyser but laboratories should check with their instrument manufacturer that this is recommended. It is unnecessary on purulent samples.
7. Measurement of glucose is only recommended in effusions suspected of being due to rheumatoid arthritis.
8. Additional pleural fluid tests are only required if a specific question is being asked:
 - Amylase in acute pancreatitis or oesophageal rupture
 - Pleural fluid triglyceride in suspected chylothorax
 - Pleural fluid creatinine in suspected urinothorax

ASCITIC FLUID ANALYSIS

1. Local risk assessment regarding specimen collection and handling in the laboratory should be carried out in each Trust as for pleural fluids.
2. Samples should ideally be collected into heparinised tubes to prevent clot formation.
3. Blood-stained samples should not be analysed.
4. Ascitic fluid albumin should be determined along with a simultaneous blood sample for albumin. The serum should be collected within 24 hours of collection of the ascitic fluid. SAAG (serum albumin - ascitic fluid albumin gradient) greater than 11 g/L indicates the presence of portal hypertension and no further tests are required.

Note: In patients with mixed ascites a SAAG gradient greater than 11 g/L would be expected.

Diuresis or very low serum albumin (<12g/L) may make the gradient less reliable.

5. Additional tests are only required if a specific question is being asked:
 - Amylase if suspected pancreatitis or gut perforation
 - Triglyceride if suspected chylous ascites
 - Bilirubin if suspected biliary perforation
 - Differentiating spontaneous bacterial peritonitis from secondary infection. (An ascitic fluid glucose less than or equal to 2.8 mmol/L, an LDH greater than the upper limit of normal for serum and a total protein greater than 10 g/L are suggestive of secondary peritonitis. This is 100% sensitive but only 45% specific.)