SydPath
ST VINCENT'S PATHOLOGY

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CA 19-9 INFORMATION SHEET

PHYSIOLOGY

Ca 19-9 is a tumour marker for pancreatic, gastric, colonic and ovarian carcinoma. The epitope is a glycolipid on a glycoprotein (mucin) which corresponds to the Lewis (a) blood group determinant with added sialic acid residues. The antigen is defined by a monoclonal antibody raised against determinants found in human colo-rectal cancer cell lines. The antigen is also found in normal foetal tissue as well as adult pancreas, salivary ducts, gastric and colonic epithelium, pancreatic fluid, gastric fluid, saliva and meconium. CA 19-9 is removed from the circulation by the biliary system. The antigen is not expressed in persons with genotype Lewis (a-b-), which corresponds to about 5% of population.

PATHOLOGY

CA 19-9 is elevated primarily in patients with carcinoma of the gastro-intestinal tract. In colon cancer, higher levels are associated with higher Dukes classification. Higher levels are more likely to be due to malignancy than lower levels, but very high levels are occasionally seen in patients with benign conditions such as cirrhosis. CA 19-9 is not sufficiently specific for use as a screening test.

The greatest usefulness of CA 19-9 is with pancreatic cancer. 68% of patients with pancreatic cancer will have CA 19-9 levels greater than 100 kU/L, whereas only 2% of cases of pancreatitis will have levels this high. The specificity for pancreatic cancer increases with high levels with values greater than 1000 kU/L showing a specificity of >99%, however most of these cancers will be unresectable. CA 19-9 is raised in 20-30% of patients with newly diagnosed colo-rectal carcinoma and in 40-60% with gastric cancer however measurement of CA 19-9 is not recommended for diagnosis or management of these conditions.

Benign conditions where CA 19-9 may be raised include acute pancreatitis (25% of cases), cirrhosis (62%), cholecystitis, biliary obstruction, gastric ulcer, benign pulmonary disease, chronic hepatitis C and smoking. Levels in liver disease may be greater than 1000 kU/L with a case of primary biliary cirrhosis has been reported with a value of greater than 100,000 kU/L.

REFERENCE INTERVAL

<34 kU/L.

34 kU/L is approximately the 97.5th centile of a normal population. The normal population shows a skewed distribution with the mean normal value less than 10kU/L.

MEASUREMENT

Serum (gold top) and heparin (lime top) are acceptable sample type. The test is performed 24/7 results are available within 3 hours of the sample arriving at the laboratory.

When monitoring patients over time it is important to ensure that the same type of assay is used, ideally at the same laboratory.

REVIEWS

Duffy, M.J. CA 19-9 as a marker for gastrointestinal cancers: a review. Ann. Clin. Biochem. 1998;35, 364-370.

Locker GY et al. American Society of Clinical Oncology 2006 Update of recommendations for the use of tumour markers in gastrointestinal cancer. J CLin Oncol 2006;24:5313-27