The usefulness of serum CA 19-9 as a tumor marker for pancreas, stomach, colon, bile, bile duct and lung cancer was confirmed. CA 19-9 levels in bile from patients with bile duct cancer or pancreas cancer were extremely high, although bile from patients with benign diseases were high. Pancreatic juice, ascites and pleural effusion in malignant diseases showed high CA 19-9 levels. However, fluids in thyroid cyst had high levels in spite of benign disease. Tracer amounts of CA 19-9 were also found in normal human urine. Meconium showed extremely high CA 19-9 levels that was perchloric acid soluble, while normal human stool had trace amounts. When a standard solution of Le and Le substance (Ortho Lab) was treated with neuramidase, CA 19-9 was not detected. This indicates that monoclonal antibody for CA 19-9 does not reactive with Lewis antigen. CA 19-9 activity in serum, bile, fluids in thyroid cyst and meconium was found in the void volume by gel-filtration study on Sepharose 2B. No binding of Con A with CA 19-9 in meconium, serum in cancer patient and bile in bile duct cancer was observed. This experiment suggests that increased CA 19-9 antigen on tumor cell surface may be released as the form of glycolipid or glycoprotein of over 4X10⁶ daltons.

CLINICAL EVALUATION OF CA19-9 IN THE SERUM FROM CANCER PATIENTS.

CA19-9(Carbohydrate Antigen19-9) which is the gastrointestinal tumor-associated antigen is noted as a new tumor marker CA19-9 of serum from patients with various malignant disease were assayed and the relation between CA19-9 and other tumor markers were examined. Among cancer patients, there were 27 gastric cancer patients, 34 colorectal, 13 biliary, 9 pancreatic, 34 breast, and 18 thyroid cancer. CA19-9 of serum from 20 healthy donors and 23 biliary stone patients were examined. CA19-9 level of healthy donors was 8.05±6.46U/ml and that positive rate is 8% (Cut off level:37U/ml). Mean level and positive rate of various cancer sera are higher than those of healthy donors. Especially the average CA19-9 level from biliary cancer patients was significantly higher than that of healthy donors (p<0.001, p<0.01). Average level of CA19-9 in serum from gastric and colorectal cancer patients was examined to detect the relation in each stage or those factors (s, h, F, n). But no relation was found. There was no correlation between CA19-9 and other tumor markers such as CEA, TPA in various cancer patients. From this result, it is suggested that combination assay with some tumor markers will be helpful for elevating the accuracy of the cancer diagnosis.

STUDIES ON CA 19-9 ANTIGEN IN SERUM, BODY FLUIDS AND STOOL.

The usefulness of serum CA 19-9 as a tumor marker for pancreas, stomach, colon, bile, bile duct and lung cancer was confirmed. CA 19-9 levels in bile from patients with bile duct cancer or pancreas cancer were extremely high, although bile from patients with benign diseases were high. Pancreatic juice, ascites and pleural effusion in malignant diseases showed high CA 19-9 levels. However, fluids in thyroid cyst had high levels in spite of benign disease. Tracer amounts of CA 19-9 were also found in normal human urine. Meconium showed extremely high CA 19-9 levels that was perchloric acid soluble, while normal human stool had trace amounts. When a standard solution of Le and Le substance (Ortho Lab) was treated with neuramidase, CA 19-9 was not detected. This indicates that monoclonal antibody for CA 19-9 does not reactive with Lewis antigen. CA 19-9 activity in serum, bile, fluids in thyroid cyst and meconium was found in the void volume by gel-filtration study on Sepharose 2B. No binding of Con A with CA 19-9 in meconium, serum in cancer patient and bile in bile duct cancer was observed. This experiment suggests that increased CA 19-9 antigen on tumor cell surface may be released as the form of glycolipid or glycoprotein of over 4X10⁶ daltons.

BASIC AND CLINICAL STUDIES USING THE PROIGIFENR TPA (TISSUE POLYPEPTIDE ANTIGEN) KIT AS A TUMOR MARKER.
Yoshiko Takahara, Shuichi Daibo, Jinsei Sato, Akiko Ishibashi, Yoshiko Sasa, and Yoshio Yonahara. Nuclear Medicine Center, The Second Tokyo National Hospital, Tokyo.

TPA, which was discovered by Bjorklund, et al. in 1957, has recently been attracting attention as a new tumor marker. The present paper is a report on use of the TPA kit by the authors.

Results
1. 'Within Assay Variation': 4.6 - 6.3%  
2. The dilution test resulted in a straight line which went through the origin point, within the scope of 1500 u/l.
3. Range of healthy people:
<table>
<thead>
<tr>
<th>Sex</th>
<th>Number of cases</th>
<th>Mean ± S.D.</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>101</td>
<td>62.6±21.0</td>
<td>20.6-105.8 u/l</td>
</tr>
<tr>
<td>Female</td>
<td>119</td>
<td>53.3±16.8</td>
<td>25.3-106.5 u/l</td>
</tr>
</tbody>
</table>
4. Positive ratios of diseases as follows:
   - Lung Cancer: 76.5%  
   - Gastric Cancer: 64.9%  
   - Hepatic Cancer: 68.4%  
   - Pancreatoc Cancer: 82.3%  
   - Colon Cancer: 61.9%  
   - Rectum Cancer: 56.2%  
   - Esophageal Cancer: 70.5%  
   - Mastocarcinoma: 31.2%  
   - Prostatic Cancer: 60%  
   - Hepatocarcinosis: 83.7%  
   - Hepatitis: 58.8%  

High values were exhibited, especially in the case of acute hepatitis. All early pregnancy cases showed positive values which were below 'the cut-off values' and all late pregnancy cases exhibited 'positive' results.

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