The Diagnostic Evaluation in the Pancreas Scintigraphy ^{75}Se-Selenomethionine in Cancer of the Pancreas

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In order to evaluate a role of the pancreas scintigraphy in diagnosis of pancreas cancer, 53 cases of pancreas cancer including 23 cases in head region, 23 cases in body and tail region and 7 cases in papilla region are studied. And 5 cases of bile duct cancer, 3 cases of gall bladder cancer and 3 cases of bile duct stone are also studied for differential diagnosis.

In 21 cases among 23 cases of pancreas head cancer, the filling defect is clearly shown in region of head. The remaining 2 cases show filling defect in the entire pancreas.

In 20 cases among 23 cases of pancreas body and tail cancer, the filling defect is correctly shown. There is filling defect shown in the entire pancreas in 3 cases.

In 5 cases among 7 cases of papilla cancer, the pancreas is normally demonstrated, and in 2 cases the filling defect is seen in the region of head.

In 5 cases of bile duct cancer, 3 cases of gall bladder and 3 cases of bile duct stone, the pancreas is normally shown in 9 cases, but in 2 cases (a bile duct cancer and a gall bladder cancer), the filling defect is noted in the head.

These findings showd the role of pancreas scintigraphy in diagnosis of pancreas malignancy to be very highly evaluated and highly accurate. In the cancer of the papilla and bile duct, the filling defect is seen in the head of pancreas, these findings should be differentiated from the cancer of head of pancreas by other examining method and also study of pathological changes.

Measured Values of 214 Pancreas Photoscintigrams: Their Significance in Clinical Diagnosis of Pancreatic Diceases

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Pancreas scintiscans were performed on 204 subjects hospitalized in our hospital and our study was made in regard to:

1) Morphology and statistics of 99 pancreas scintigrams identified normal.
2) Interrelationship between abnormal pancreas scintigrams and clinical pictures, including the results of fat absorption study with radioiodinated triolein and oleic acid, in 59 subjects.
3) Comparative study of abnormal pancreas scintigrams with findings of autopsy (in 9 cases) and surgical operations (in 10 cases).
4) Significance of subtraction procedure, or "double scanning technique" in the baffling cases in which the pancreas image is superimposed on the liver image.

1) Ninety-nine normal pancreas scintigrams could be classified into 3 types: comma-shaped (84 cases), transverse (5 cases), and sigmoid type (10 cases). Measurements of individual portions of the pancreas yielded the following values: width of the head 33±4 mm, width of the body 24±4.4 mm, width of the tail 29±4.2 mm, and the length of the normal pancreas was 136±15.9 mm. Smaller values presumably were associated with certain pathologic condition of the pancreas.

2) Abnormal scintigrams in cluded non-visualization (16 cases), defect in the head (5 cases), defect in the body (4 cases), defect in both the body and tail (7 cases), and defect in the tail (5 cases). Solitary or localized warm area and diffuse warm area were observed in 21 cases, and no diagnosis was possible in 21 cases. Pancreas scintigram rendered higher diagnostic informations when solitary or diffuse defects could be demonstrated. Diagnosis, on the contrary, was difficult or impossible in chronic pancreatitis, and inflammatory processes of the biliary tract.

3) Nineteen cases undergoing surgical operation and/or autopsy included primary pancreatic malignancy, metastatic cancer, pancreatic cyst, and acute and chronic pancreatitis, in which the collet diagnosis was possible in 13 cases, or approximately 68 per cent.

4) Subtracted pancreas scintigram or "double scan technique" was considered highly efficient in cases difficult to interpret.

Study of Vitamin B_{12} Binding Proteins in Gastric Juice by ^{57}Co, and ^{58}Co Labelled Cyanocobalamin: Discriminating Assay System Between Binder and Binder-B_{12} Complex

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It is known that, there are two kinds of vitamin B_{12}(B_{12}) binding proteins in gastric juice called as Intrinsic Factor(IF) that promote specific intestinal absorptio nof B_{12}, and non-IF binder that lacks IF activity. Assay of these proteins are carried out by the determination of the binding capacity of B_{12} with a radioactive B_{12} of a known specifis activity. Descriminating assay system is required for the analysis of difference between natures of the B_{12} free binder and the binder-B_{12} complex.

Methods:

Small amount of binder-$^{57}Co\cdot B_{12}$ complex was mixed with B_{12} free binder. After the fractionation, ^{57}Co radioactivity was determined as binder-B_{12} complex. Thereafter, $UB_{12}BC$ of each fraction was determined as B_{12} free binder by the charcoal assay, according to Gottlieb. $^{58}Co\cdot B_{12}$ was used for assay of $UB_{12}BC$ because ^{58}Co radioactivity could determine without influence from ^{57}Co radioactivity by scintillation spectrometry.

Results:

Molecular sizes of non-IF-B_{12} complex and IF-B_{12} complex obtained by gel filtration on Sephadex G-150, according to the Determann's method were 12×10^4 and 59000, respectively.

B_{12} free IF was eluated before IF-B_{12} complex. Molecular weight of IF was increased following formation of IF-B_{12} complex, but observed molecular size was inversely decreased. This phenomenon could be assessed by change of Stokes radius of IF molecule on binding of B_{12}.

The Stokes radius was calculated by desk computer (Programma 101, Olivetti-Underwood) according to Ackers' method, and albumin (36.1 A) was used as an internal standard. Thus, Stokes radii of IF was 36.4 A, and IF-B_{12} complex was 32.6 A. Therefore, 3.8 A of shrinkage of IF molecule occurred