3. Pancreatic and Gastric Cancer

P.		Burtin
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Laboratoire d'Immunochimie, Institut de Recherches Scientifiques sur le Cancer, Villejuif, France

P. Burtin, Laboratoire d'Immunochimie, Institut de Recherches Scientifiques sur le Cancer, Boîte Postale No. 8, F-94802 Villejuif Cedex (France)

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Pancreatic Carcinomas

Carcinoembryonic antigen (CEA) is a well-recognized marker for pancreatic carcinomas. Its serum levels are increased in most of these tumors. However, only high levels have a diagnostic value, because chronic pancreatitis often results in an elevated serum CEA titer.

The monoclonal antibody CA 19-9 recognizes a carbohydrate epitope (sialylated Lewis a) carried by a glycolipid [1] and a high-molecular weight glycoprotein [2]. It is a component of normal adult and fetal pancreatic ducts [3]. It is increased in most pancreatic carcinomas [4-6]. A moderate increase may be seen also in the sera of patients with chronic pancreatitis and alcoholic cirrhosis. However, there is a wide disparity between the number of patients with antigen levels > 37 U/ml detected by CA 19-9 in pancreatic carcinomas as distinct from chronic pancreatitis (table I). Thus, it is likely that this assay may be of value in distinguishing between these two diseases. Its value seems superior to that of CEA. Simultaneous assay of the CA 19-9 antigens and CEA may improve the precision by which pancreatic cancer is detected [6].

Oncofetal pancreatic antigens have been reported by several groups. Their organ specificity was questionable and they were found unsatisfactory for diagnostic purposes. Recently, similar studies have been initiated in my laboratory by M.J. Escibano. The existence of oncofetal pancreas-specific antigens has been demonstrated in the hamster [7]. Preliminary data indicate the presence of similar antigens in the human pancreas [8]

Gastric Carcinomas

For gastric cancer, CEA is not a good marker, as significant increases in its serum levels are delayed until there is widespread metastatic disease.

The antigen(s) recognized by the CA 19-9 antibody was found in almost all gastric carcinomas by immunohistology (89%) [3]. By

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Table I. Incidence of raised antigenic determinants in serum detected by the CA 19-9 antibody

Authors	CA 19-9 positivity (> 37 U/ml serum)
pancreatic chronic carcinomas	
pancreatitis	
Del Villano et al. [4]	63/80 (79%)
0/21 (0)Ruibal[5]	12/14(75%)
5/28(17)	

Thirion [6] 50/57 (88) 2/34 (6)

Numbers in parentheses indicate percentages.

Table II. CA 19-9 positivity (> 37 U/ml) in gastric carcinomas

Authors	Incidence of raised levels
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Del Villano et al. [4]	12/24 (50%)
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Ruibal[5]	14/42(33%)
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Staab et al. [9]	17/65(26%)
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contrast, radioimmunoassay showed increased values of this antigen in the sera of only 25–50% of patients with gastric carcinomas (table II). However, it seems that the joint assay of serum CEA and CA 19-9 increases the frequency of abnormalities. Of 65 patients with gastric carcinoma, 31 had increased serum CEA levels and 17 increased levels of the CA 19-9 antigen. In 37 cases there was an increase of at least one marker.

Other markers are being sought. A fucose-pentaose ceramide (Lewis^x) has been found in 92% of gastric carcinomas by immunohistochemistry. In other studies, antigens associated with intestinal mucus have been characterized in gastric carcinomas [10]. They show two main antigenic patterns, which correspond to those found in the fetal small intestine and the gastric mucosa, respectively. Intestinal gastric mucosal metaplasia exhibits mainly the first pattern. These data may give information on the histogenesis of gastric carcinomas. Nonetheless, they have little clinical relevance as long as the corresponding antigens are not assayable in the serum of patients.

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