

Chronic Pancreatitis in Mice by Treatment with Choline-Deficient Ethionine-Supplemented Diet

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Abstract :

Although chronic pancreatitis is a risk factor for pancreatic ductal adenocarcinoma (PDA), the relationship between chronic pancreatitis and PDA remains obscure. A critical obstacle to understanding the role of chronic pancreatitis is the lack of animal models. To develop one such model, mice were fed long-term with a choline deficient ethionine-supplemented (CDE) diet. Histological evaluation revealed that chronic pancreatitis, characterized by acinar atrophy, fibrosis and well-developed tubular complexes (TCs), was observed after 24 weeks of CDE diet treatment. Furthermore, expression of epidermal growth factor receptor (EGFR) and its ligands; serine protease inhibitor Kazal type 3 (Spink3) and transforming growth factor β (TGF β) and activation of K-Ras (GTP-Ras formation), which are frequently observed in human PDA, were indeed observed in parallel with TCs formation. Neoplastic lesions were not found after 54 weeks of treatment, suggesting that a continuation of CDE diet or another insult is required for the development of PDA.

Key Word :

CDE diet, chronic pancreatitis, EGFR, Spink3, tubular complex

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