International Journal of
Clinical & Medical Images

ISSN : 2376-0249
Vol 9 • Iss 11 • 1000858, 2022

Clinical-Medical Image

Detection of High-Risk Patients with Pancreatic Cancer

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Pancreatic cancer risk factors have been identified. Type 2 diabetes, for instance, increased the likelihood of developing pancreatic cancer. Current and former smokers were found to have a higher risk than nonsmokers, and moderate alcohol consumption (less than 30 grams per day) was linked to an increased risk of pancreatic cancer. Chronic pancreatitis has been identified as a risk factor for pancreatic cancer in particular by epidemiological studies. The pancreas is the site of multifactorial fibro inflammatory chronic pancreatitis. Chronic pain, exocrine and endocrine pancreatic insufficiency, and extensive fibrotic tissue replacement are all consequences of persistent pancreatic inflammation. In the United States, this disease has a wide range of incidence, ranging from 2 to 14 per 100,000 people. During their lifetimes, approximately 5% of these patients will develop pancreatic cancer. Chronic pancreatitis patients have a 13-fold increased risk of developing pancreatic cancer compared to healthy individuals. As a result, it is beneficial to screen patients who suffer from chronic pancreatitis for pancreatic cancer.

Cancer biomarkers have been identified as polyamines. MYC promotes glycolysis and regulates cancer metabolism. Additionally, MYC activates glutamate biosynthesis from glutamine, which provides the necessary energy and substrate, and also promotes aerobic glycolysis in cancer cells. In pancreatic cancers, this gene is linked to metastasis, intratumoral angiogenesis, epithelial–mesenchymal transition, and resistance to chemotherapy. In the transformation and progression of pancreatic cancer, MYC plays a crucial role as a master cell proliferation regulator. Ornithine decarboxylase 1, a rate-limiting enzyme for polyamine synthesis that catalyzes the production of putrescine from ornithine, is expressed when MYC is over expressed. Acetylated polyamines are also released from the cell when spermidine/spermine N1-acetyltransferase is activated. Polyamines are common in the environment and have been found to increase in blood and urine concentrations in a variety of cancers. There is a positive correlation between polyamine concentrations in pancreatic cancer tissues and those in the blood and urine. Patients with pancreatic cancer and chronic pancreatitis have also been found to have elevated polyamine levels in their saliva. Multiple logistic regression (MLR) was used to compare the accuracy of detecting a combination of salivary polyamines with tumor markers. For instance, the positive detection rates of carcinoembryonic antigen are 0 percent for chronic pancreatitis and 0 percent, 75.6 percent, and 47.5 percent, respectively, for stage III, IV, and IVb pancreatic cancers. In addition, MLR levels are 14.3% for chronic pancreatitis and 83.3, 58.3, and 76.2%, respectively, for pancreatic cancers of Stages III, IVa, and IVb. As a result, salivary polyamines demonstrated their ability to identify chronic pancreatitis.

Because no cases of pancreatic cancer were included in this study, the risk of developing the disease could not be assessed. Due to the low prevalence of pancreatic cancer, a larger population should be included. Pancreatic cysts, main pancreatic duct dilatation, gallbladder tumors, and chronic pancreatitis are all possible outcomes of this saliva test. Despite their benign nature, pancreatic cysts have a high risk of developing cancer due to their rapid growth. Another potential risk factor for cancer is dilation of the main pancreatic duct. The possibility of utilizing salivary polyamines to identify high-risk pancreatic cancer is highlighted by our findings [1,2].

Conclusion

The study's conclusion looked at whether polyamines in saliva could be used as a pancreatic disease screening test. However, there was no way to assess the risk of developing pancreatic cancer. Instead, we looked at how well they could detect other pancreatic diseases. The salivary polyamine test is effective for pancreatic cancer screening of high-risk patients and is non-invasive, requiring less physical effort from each participant.

Keywords: Pancreatic Cancer; Chronic pancreatitis; Cancer biomarkers

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Received: *03 November 2022, Manuscript No. ijcmi-23-89011;* ***Editor assigned:*** *05 November 2022, Pre QC No. P-89011;* ***Reviewed:*** *18 November 2022, QC No. Q-89011;* ***Revised:*** *21 November 2022, Manuscript No. R-89011;* ***Published:*** *28 November 2022, DOI: 10.4172/2376-0249.1000858*

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Citation: *Poe D. (2022) Detection of High-Risk Patients with Pancreatic Cancer. Int J Clin Med Imaging 9:858.*