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Clinical Types & Review of Pancreatic Cancer

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Research Article

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ABSTRACT

The cancer which occurs in Pancreas due to the uncontrolled multiplication of cells of pancreatic walls is termed as Pancreatic Cancer. Most of the pancreatic cancer is Adenocarcinomas. This carcinoma has a tendency to invade other body parts. It usually starts from the secretory area of the digestive enzymes.

Apart from this, there are other non-adenocarcinomas types of pancreatic cancers which can also be observed. Apart from these two types, other type of pancreatic cancers are very rare but can be recorded, such as neuroendocrine tumors. It emerges from the hormone secretory cells of pancreas. In this we review the different aspects of Pancreatic cancer as it is not the best known form of disease.

INTRODUCTION

The pancreas is a glandular organ in the digestive system and endocrine system of vertebrates. In humans, it is located in the abdominal cavity behind the stomach. It is an endocrine gland producing several important hormones, including insulin, glucagon, somatostatin, and pancreatic polypeptide which circulate in the blood [1-6]. The pancreas is also a digestive organ, secreting pancreatic juice containing digestive enzymes that assist digestion and absorption of nutrients in the small intestine. These enzymes help to further break down the carbohydrates, proteins, and lipids in the chime [7-12].

The cancer which occurs at pancreas is generally termed as pancreatic cancer. It is one of the major fatal diseases and most of the palliation becomes the only option or goal of the treatment [13-16]. The pancreatic cancer patient suffers with poor quality of life and severe symptoms. In United States, Pancreatic cancer is the fourth leading cause of death with cancer and nearly 85% of cases arise from ductal epithelium [17-22]. Although there have been many advancements in technologies in medical field for treatment of cancer such as chemotherapy, radiation, surgery, etc. but the prognosis of pancreatic cancer still remains poor. However surgery still remain to be the best choice among them, but most of the patients show up late in the clinic and nearly 15-20% could be benefitted from the surgical treatment [23-28].

CONTEXT

Pancreatic cancer generally arises from precancerous lesions. The lesions may include one microscopic lesion (pancreatic intraepithelial neoplasia), two macroscopic lesions (intraductal papillary mucinous neoplasm and mucinous cystic neoplasm) [29-34].

The incidence of pancreatic cancer is also becoming common in older patients. Every one out of three pancreatic cancer patient is an elderly patient. It is also the 4th most common cause of death from cancer in patients with 70 years age or more [35]. Even though there are guidelines for the treatment of elderly patients with pancreatic cancer but it is difficult to recommend to a patient by a medical person [36-40]. Apart from surgery, chemotherapy is also an important considerable mode of treatment. However, the side effects may reduce the quality of life, in other words the benefit is comparatively lesser [41,42].

As there is still no effective treatment for pancreatic cancer, the scientific world has been carrying on many researches for inventing new treatment strategies. The patients which are having Advanced Pancreatic Cancer (APC) are having the worst prognosis as compared to other malignancies [43-46]. The patients who are suffering from chronic pancreatitis (CP) shows symptoms like abdominal pain, steatorrhea, weight loss or obstructive jaundice, which resemble those of pancreatic cancer (PaC) from ductal adenocarcinoma and cause diagnostic confusion. Furthermore, CP of any type is a well-known risk for developing PaC later in the course of the disease [47-52]. Since PaC is deadly and the only believed chance for cure is to detect it when it is as small and as early as possible.

Thus, surveillance of patients with CP who are at risk for developing PaC seems to be reasonable, though it is unclear that surveillance will really improve patients' survival or be just a lead time bias [53]. The main obstacle is that the background of the pancreas with CP usually interfere the detection of PaC by any imaging tool. Thus, surveillance of PaC in CP is one of the most difficult issues in Pancreatology [54,55].

Types

Basically pancreatic cancer can be divided into two major groups, however about 99% of cancers occur in the exocrine component, which produces the digestive enzymes [56,57]. The cancers of the exocrine component or Exocrine Pancreatic Cancers have many subdivisions or types, but the treatments & diagnosis are more or less common, but the cancers which occur in exocrine tissues i.e hormone producing tissues of pancreas possess different clinical characteristics [58-60]. The people over 40 are the most affected by both types, especially men. However, the rare types occur in women & children [61].

Exocrine cancers

The exocrine cancers of pancreas are mostly adenocarcinoma, which could be both invasive and ductal [62]. This adenocarcinoma start in the ducts of pancreas (Ductal epithelium) and are commonly termed as PDAC (Pancreatic Ductal Adenocarcinoma) represents 10% of all types of pancreatic cancer compared to the 85% of all types adenocarcinoma of pancreas [63-65]. About 70% of adenocarcinoma occurs in the head of pancreas by originating in the ductal epithelium by secreting enzymes and bicarbonates, which is 10% of pancreas in terms of cell volume [66].

- **Acinar cell carcinoma:** These types of carcinomas occur in clusters of enzyme producing cells in pancreas. It is also a type of exocrine cancer and represents about 5% of the exocrine cancers. Due to overproduction of certain molecules such as digestive enzymes by the acinar cells may cause skin rashes and joint pain [67,68].
- **Cystadenocarcinoma:** It represents 1% of pancreatic cancers, and they have a better prognosis than the other exocrine types [67,69].
- **Pancreatoblastoma:** It is very rare and majority of the case occur in children, but it has a good prognosis [67,70].
- Apart from this other exocrine cancers include adenosquamous carcinomas, signet ring cell carcinomas, hepatoid carcinomas, colloid carcinomas, undifferentiated carcinomas, and undifferentiated carcinomas with osteoclast-like giant cells. Solid pseudopapillary tumor is a rare low-grade neoplasm that mainly affects young women and has a very good prognosis [67,71-73].
- **Pancreatic mucinous cystic neoplasms:** These types of cancers are very broad and these types of tumors can be malignant. CT scans are usually used to detect these type of cancers, however the debate is still active on how to get a proper diagnosis & treatment [67,74-78].
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Neuroendocrine

The type of cancer which can show up anywhere in the pancreas is called Pancreatic Neuroendocrine tumors (PanNETs) [79,80]. These tumors are very minor compared to exocrine cancers. It usually arises from the neuroendocrine cells, which integrates the nervous system and endocrine system, and could either be benign or malignant, although the malignant ones are rare [81-85].

Apart from this the PanNETs are divided into functioning and non-functioning tumors [86]. The functioning types secrete hormones like insulin, gastrin, and glucagon into the bloodstream in large quantities which lead to complications like low blood sugar, however, it could be detected early [87]. Two common types of PanNETs are insulinomas and gastrinomas [88]. The name has been given according to the respective secretory hormone [89-94].

On the contrary, the non-functioning tumors do not secrete hormone sufficiently to make the symptoms show up. Due to this reason the cancer can only be detected after its spread to other organs in its case [95-98]. PanNETs were sometime referred as islet cell cancers, however later it was confirmed that it does not actually arise from islet cells [99].

CONCLUSION

Recently, there have been some discoveries that might improve the treatment quality of pancreatic cancer & as well as the life of the patients. Even though the detection parameters are up to the mark is generally accurate, the treatment options are limited.

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