

Correlation of Pancreatic Cancer Survivability Based on Location of Pancreatic Tumor

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According to the American Cancer Society (2017), pancreatic cancer is the 3rd most fatal cancer. Pancreatic cancer is a highly lethal and incurable disease with a 5-year survival rate of 9% which has not improved significantly in the past 40 years. Pancreatic Adenocarcinoma (PDAC), in general, has poorer survival rates when pancreatic cancers are initially diagnosed in the body and tail (Artinyan et. al, 2008). Understanding how the survival rate of pancreatic cancer alters depending on the location of a pancreatic tumor is essential in creating widely practiced treatment methods.

The pancreas is an organ in the abdomen that converts consumed food into fuel for the body. The pancreas has two main functions: an exocrine function that helps with digestion and an endocrine function that regulates blood sugar. The pancreas is located behind the stomach in the upper left abdomen. It is surrounded by the other organs; the small intestine, liver and spleen (“The Pancreas and Its Functions”, 2017). Two of the main pancreatic hormones are insulin, which lowers blood sugar, and glucagon, which raises blood sugar. The pancreas has an important job because if blood sugar isn’t regulated, vital organs like the brain and heart can be damaged (“The Pancreas and Its Functions”, 2017). The pancreas contains exocrine glands that produce enzymes which help in digestion. These enzymes include trypsin and chymotrypsin to digest proteins, amylase for the digestion of carbohydrates, and lipase to break down fats. When food enters the stomach, these enzymes are released into a system of ducts that gather together in the pancreatic duct.

The pancreas consists of four main parts: the head, neck, body, and tail. The head of the pancreas has major connections with the gallbladder and duodenum. If metastasized and

developed to a stage four scenario, survival rates are grim for these organs (Artinyan, Avo et al., 2008). However, patients with cancer in the head of the pancreas outnumber those with the cancer in the tail. Procedures like the whipple surgical method have been developed specifically for cancer of the head. Surgical methods greatly improve the survival rate of the disease. Another key factor for cancer cells of the pancreas are islet cells. Cancer invading such cells can lead to strains of cancer spreading through the blood and across the human body (Winter JM et al., 2006).

There have been few studies conducted in the past that attempt to examine the relationship between tumor location and survival for pancreatic cancer. Among the large-cohort studies published on PUBMED, a study by Artinyan et al. notes the differences between pancreatic cancers of the body and tail. Artinyan et al. derived that body and tail tumors have a lower resectability and therefore, a lower survival-rate compared to other locations. It is also common knowledge amongst pancreatic cancer specialists that many surgical procedures have been developed and are in practice to treat patients with pancreatic head and neck cases. Studies have shown that the average days to death for body and tail patients was approximately 4 months whilst days to death for pancreatic head patients was closer to 6 months (Artinyan et al., 2008).

Similar to other cancers, pancreatic cancer is an aggressive disease that inflicts its damage through metastasis. Cancers of the body and tail have been shown through history. Studies involving tumor location can provide an accurate survival rate prognosis for patients with pancreatic cancer. Having knowledge about the statistics for different specifics of pancreatic cancer can help provide an accurate prognosis to patients. Large cohort studies can be conducted

with widely available data to train predictive models to take several risk factors and variables to derive an accurate survivability index.

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