

# Malnutrition is predictor of long-term survival in patients undergoing Whipple procedure

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Malnutrition is an important factor predicting long-term survival in older patients undergoing pancreaticoduodenectomy (PD) (commonly called the Whipple procedure) to treat benign tumors and cysts of the pancreas as well as pancreatitis, according to new study results published in the December issue of the *Journal of the American College of Surgeons*.

"A comprehensive geriatric assessment of elderly patients who are being evaluated for the Whipple procedure is essential," said lead study author Dominic Sanford, MD, MPHS, a general surgery resident at the Washington University School of Medicine, St. Louis. "Included in that assessment should be a thorough nutritional evaluation for both risk stratification and long-term prognosis as well as to determine who needs close long term nutritional follow up."

As the population of people 65 and older continues to grow, so does the detection of nonmalignant pancreatic diseases. Left untreated, cysts and tumors in the pancreas can progress to invasive cancer. Today, about 30 percent of Whipple procedures are performed on geriatric patients with benign pancreatic diseases. In this procedure, a surgeon removes a portion of the pancreas, the gall bladder and the bile duct, and most of the duodenum. The small intestine is then reattached to the pancreas, the bile duct and the stomach, recreating the digestive system.

The aim of this study was to look at the effect of the Whipple procedure

on long term [survival](#). Dr. Sanford and colleagues sought to examine the effect of malnutrition on geriatric patients (over age 65) as compared with younger patients (under age 65). To perform this analysis, the researchers analyzed clinical data on 305 patients who underwent the Whipple procedure for benign pancreatic disease at Barnes Jewish Hospital, St. Louis, between 1995 and 2013. They applied the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP)/American Geriatric Society Guidelines criteria for preoperative severe nutritional risk (SNR) to those patients.

Next, the researchers categorized the patients into two groups: geriatric and non-geriatric. Patients were also classified as having SNR or not having SNR. They then compared survival of geriatric and non-geriatric patients with and without SNR.

The study analysis revealed that SNR was an independent predictor of long-term survival. Geriatric patients with preoperative SNR had significantly decreased long-term survival following PD for benign disease, with about one in three patients dead at five years, compared with one in 14 patients without SNR.

Importantly, the study authors point out how well patients without SNR did following pancreatic surgery. The average age of these patients was 73 years at the time of their operation, and they had a seven-year survival of 84 percent.

Additionally, there were no significant differences among the younger patients with and without SNR. The study authors note that these results suggest the effect of SNR on long-term survival differs between older and younger patients.

"Elderly people are not just older young adults. Malnutrition affects older people who are undergoing the Whipple procedure very differently

than younger patients," Dr. Sanford said. "There is a lack of nutritional reserve in elderly patients that younger adults have; hence, [elderly patients](#) can't compensate for being malnourished when undergoing this procedure."

This study also showed that the proportion of older patients undergoing PD is rising. Over the course of the study, the proportion of geriatric patients who underwent PD for benign pancreatic diseases increased 21 percent.

"With a growing elderly population, we have to be very careful about performing the Whipple procedure on those who don't have cancer," Dr. Sanford said. "There are going to be some patients who undergo a Whipple procedure for presumed malignancy, whose pathology is ultimately determined to be benign postoperatively. These patients need to have very close long-term nutritional follow-up as a way to keep them on course and prevent them from falling off the survival curve."

Prior to this study, the long-term survival of patients undergoing PD for benign pancreatic diseases had not been well studied. The study authors conclude that this research supports the ACS NSQIP/American Geriatric Society Best Practice Guidelines' recommendation that a formal nutritional evaluation should be a routine part of the preoperative work up for geriatric patients being considered for PD. Additionally, nonoperative management should be strongly considered in geriatric [patients](#) with SNR and benign disease.

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