

Introduction

Patients with chronic pancreatitis (CP) frequently have more advanced malnutrition. Various factors such as pain, alcoholism, malabsorption, and maldigestion from pancreatic exocrine insufficiency render these patients at increased risk for sarcopenia. This work intends to assess the prevalence of sarcopenia in CP and its outcomes.

Methods

We reviewed data from a large multi-center database (Explorys IBM) aggregated from 26 large nationwide healthcare systems. Using systemized nomenclature of clinical medical terms (SNOMED CT), CP patients with and without sarcopenia were identified. Additionally, demographic data, including age, sex, race, ethnicity, smoking habits, and outcomes of CP, were obtained. We calculated the odds ratio (OR) using a univariate analysis model.

Results

106,540 patients with CP were identified, and 31.3% of these patients were found to have sarcopenia. Patients with history of sarcopenia were more likely to be elderly (>65-years-old) (OR: 1.26; 95% confidence interval [CI] 1.23-1.29; P <0.0001), female (OR, 1.11; 95% CI, 1.08–1.13; P < 0.0001), Caucasian (OR, 1.09; 95% CI, 1.06–1.11; P < 0.0001), and smokers (OR 1.53; 95% CI 1.49-1.57, P < 0.0001). CP patients with sarcopenia had increased prevalence of primary pancreatic malignancy (OR, 1.47; 95% CI, 1.4–1.55; P < 0.0001), pancreatic pseudocyst (OR, 1.41; 95% CI, 1.36–1.47; P < 0.0001), exocrine pancreatic insufficiency (OR, 1.93; 95% CI, 1.4–2.65; P = 0.0001), pancreatic malabsorption (OR, 1.72; 95 CI, 1.51-1.97; P < 0.0001), venous thrombosis (OR, 1.57; 95% CI, 1.53–1.62; P < 0.0001), and gastrointestinal hemorrhage (OR, 2.69; 95% CI, 2.63–2.75; P < 0.0001) (Table 1).

	CP with sarcopenia (n=48,220)	CP without sarcopenia (n=106,050)	OR (CI)	p-value
Demographics				
>65	21,970 (46%)	42,250 (40%)	1.26 (1.23-1.29)	< 0.0001
Female	24,410 (51%)	50,970 (48%)	1.11 (1.08-1.13)	< 0.0001
Caucasian	33,810 (70%)	72,500 (68%)	1.09 (1.06-1.11)	< 0.0001
Smoking	31,120 (77%)	72,700 (69%)	1.53 (1.49-1.57)	<0.0001
CP outcomes				
Exocrine pancreatic insufficiency	70 (0.2%)	80 (0.1%)	1.93 (1.4-2.65)	0.0001
Pancreatic malabsorption	390 (1%)	500 (0.5%)	1.72 (1.51-1.97)	< 0.0001
Pancreatic Pseudocyst	4,640 (10%)	7,440 (7%)	1.41 (1.36 -1.47)	< 0.0001
Primary pancreatic malignancy	2,400 (5%)	3,640 (3%)	1.47 (1.4-1.55)	< 0.0001
Gastrointestinal hemorrhage	15,540 (32%)	24,050 (23%)	2.69 (2.63-2.75)	< 0.0001
Venous thrombosis	10,350 (22%)	15,690 (15%)	1.57 (1.53-1.62)	< 0.0001

Discussion

This is the largest study to characterize the epidemiology and outcomes of chronic pancreatitis patients with sarcopenia. Our data indicate that sarcopenia is associated with an increased risk of CP complications and may be an important prognostic factor in CP.