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INVITED COMMENTARY

Numbers Matter: Influence of Pancreatitis on Life Expectancy

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Acute pancreatitis is among the most common non-malignant gastroenterological conditions leading to hospital admission with. Its rise in incidence is attributable to several factors, including the revised Atlanta classification, which is now more consistently applied worldwide for diagnosis, as well as advancements in high-resolution imaging techniques. Furthermore, there is a global increase in independent risk factors for pancreatitis, such as gallstones, obesity, diabetes mellitus, and the metabolic syndrome. Unfortunately, the burden of pancreatitis is particularly rising in countries with a lower Social Development Index (SDI), posing a risk of climbing healthcare inequalities for affected patients [1, 2]. In recent decades, clinical research has concentrated on developing predictive models and treatment strategies for severe acute pancreatitis and its associated complications. Evidence has emerged supporting the use of individualized and interventional therapeutic approaches for both biliary and necrotizing acute pancreatitis [3–5]. In contrast to myocardial infarction or other gastroenterological conditions, such as Crohn's disease, there have been relatively few studies examining post-discharge mortality specifically related to pancreatitis, particularly in large cohort studies and in terms of its impact on life expectancy [6, 7]. Calculating post-pancreatitis life expectancy is further complicated by the need to consider not only acute pancreatitis, which can vary in severity, but also recurrent acute pancreatitis, a condition that may progress to chronic pancreatitis.

In their study published in *Digestive Diseases and Sciences*, Munigala et al. [8] present data from a nationwide Veterans Administration database, revealing significant differences in life expectancy between patients with acute pancreatitis (AP), chronic pancreatitis (CP), and healthy controls. Whereas previous studies have demonstrated that long-term mortality in chronic pancreatitis is elevated by 38.4% after 20 years compared with an age-adjusted control cohort, the median life expectancy of 69 years for acute pancreatitis patients compared to 81 years for controls was particularly surprising ($p < 0.001$) [9]. The final cohort analyzed included 148,095 individuals: 35,550 with acute pancreatitis, 12,545 with chronic pancreatitis, and 100,000 healthy controls. As is often the case with large datasets, patient identification was based on ICD-9 codes, which inherently limits the ability to validate diagnoses at the individual level in addition to being subject to not identifying patients with documented pancreatitis. The authors acknowledge this limitation but note that, in an internal validation of 100 randomly selected acute pancreatitis patients, 88% of cases were correctly identified. It is important to highlight that differentiating recurrent acute pancreatitis from early chronic pancreatitis requires a comprehensive clinical assessment. With a 12% error rate in the identification of acute pancreatitis using ICD-9 codes, there is a potential concern that some patients with chronic pancreatitis might have been misclassified as acute pancreatitis, which could have affected life expectancy findings. However, none of the 100 randomly selected acute pancreatitis patients met the diagnostic criteria for chronic pancreatitis, which supports the overall robustness of the cohort selection.

The impact of acute pancreatitis on mortality, especially in relation to the number of episodes, was particularly compelling. Munigala et al. found that median age at death decreased with each additional episode of acute pancreatitis. Patients who experienced one episode had a median age at death of 70 years (IQR 63–82), whereas those who had ≥ 4 episodes died at a median age of 63 years (IQR

Invited commentary on Munigala et al. Decreased life expectancy in patients with acute and chronic pancreatitis.

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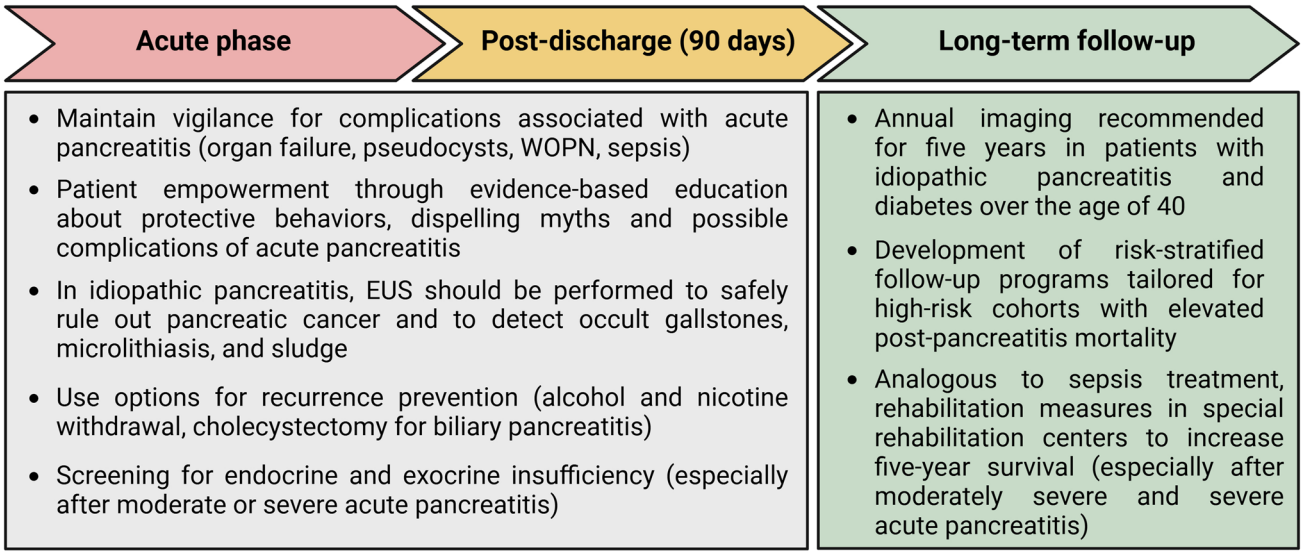

Fig. 1 Focuses of the acute phase and post-pancreatitis follow-up. Figure created via BioRender

58–69). The hazard ratio increased from 1.52 (95% CI 1.48–1.56) for those with one episode to 1.90 (95% CI 1.77–2.05) for those with ≥ 4 episodes ($p < 0.001$, median follow-up 7.6 years). In contrast to previous studies, even patients who had only one or two episodes of acute pancreatitis had a significantly lower life expectancy compared with controls.

Though mechanistic explanations for this phenomenon remain unclear, the effect persisted even after excluding pancreatic ductal adenocarcinoma (PDAC) or neoplasia as the primary cause of death, and after accounting for biases related to alcohol use and smoking. The most common causes of death among acute pancreatitis patients were heart disease (6.7%), lung cancer (6.2%), and chronic obstructive pulmonary disease (COPD, 5.1%). These findings align with a large prospective cohort from Hungary, which identified end-stage cancer, non-pancreatitis-related sepsis, and cardiac failure as the leading causes of death in the 90 days to 8 years following acute pancreatitis [10]. Notably, during the first 90 days after an acute pancreatitis episode, mortality was largely driven by pancreatitis-related complications (e.g., WOPN [Walled-off pancreatic necrosis] or infected pseudocyst-related sepsis). In contrast, mortality during the longer follow-up period was primarily attributed to pre-existing comorbidities. Study conclusions rely on a carefully selected control group, predominantly male (94.4% of the acute pancreatitis cohort and 95.2% of controls), based on Veterans Administration data. The authors also address the potential influence of a "health soldier effect," where the health and life expectancy of the control group could be positively impacted by access to healthcare, regular screening, and job-related fitness requirements.

Acute or recurrent pancreatitis can lead to psychological stress, potentially perpetuating risk factors like addictive behaviors, social isolation, or depression—factors that can negatively impact life expectancy, as shown in several Veteran databases. The findings of the study are further contextualized when compared with data from a hospital-based control group, which might provide a more representative benchmark for this cohort. Though the Hungarian cohort also observed increased mortality in the first 8 years after acute pancreatitis, it was only when compared to the general population and not to a hospital-based control group.

Further results from large pancreatitis cohorts are needed to understand the impact of severity and etiology on post-pancreatitis long-term mortality and to enable cost-effective follow-up through individualized risk stratification. To improve the generalizability of the results, future studies should also aim for a more diverse control group that more closely mirrors the cohort under investigation. Nevertheless, the study by Munigala et al. is highly persuasive, not only due to the large sample size but also because of the robust statistical methods and random sampling approach employed (Fig. 1).

As a result of the study, medical doctors worldwide must recognize a shift in focus to optimize patient care. Beyond inpatient management of pancreatitis, post-discharge care should be prioritized to risk-stratifying for etiologies, excluding occult pancreatic carcinoma using cross sectional imaging and endosonography, monitoring complications such as WOPN and pseudocysts, correctly diagnosing and managing exocrine and endocrine insufficiency, and establishing specialized rehabilitation programs for severe pancreatitis patients. Furthermore, identifying high-risk cohorts

for 1-year and multi-year mortality following pancreatitis is necessary for effective long-term follow-up. That the majority of patients with acute pancreatitis succumb to non-gastroenterological causes underscores the necessity for holistic treatment and preventive measures delivered by multidisciplinary and multiprofessional teams. Achieving these goals will require global collaboration among pancreatologists, particularly during these challenging times.

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Data Availability No datasets were generated or analysed during the current study.

Declarations

Conflict of interest The authors declare no competing interests.

References

1. Iannuzzi JP, King JA, Leong JH et al. Global incidence of acute pancreatitis is increasing over time: a systematic review and meta-analysis. *Gastroenterology* 2022;162:122–134.
2. Wen Y, Luo Y, Huang Y et al. Global, regional, and national pancreatitis burden and health inequality of pancreatitis from 1990 to 2019 with a prediction from 2020 to 2034. *BMC Public Health* 2024;24:3329.
3. Żorniak M, Sirtl S, Beyer G et al. Consensus definition of sludge and microlithiasis as a possible cause of pancreatitis. *Gut* 2023;72:1919–1926.
4. Boxhoorn L, van Dijk SM, van Grinsven J et al. Immediate versus postponed intervention for infected necrotizing pancreatitis. *N Engl J Med* 2021;385:1372–1381.
5. Hollemans RA, Bakker OJ, Boermeester MA et al. Superiority of step-up approach vs open necrosectomy in long-term follow-up of patients with necrotizing pancreatitis. *Gastroenterology* 2019;156:1016–1026.
6. Her A-Y, Shin E-S, Kim YH et al. The contribution of gender and age on early and late mortality following ST-segment elevation myocardial infarction: results from the Korean Acute Myocardial Infarction National Registry with Registries. *J Geriatr Cardiol JGC* 2018;15:205–214.
7. Kuenzig ME, Manuel DG, Donelle J et al. Life expectancy and health-adjusted life expectancy in people with inflammatory bowel disease. *CMAJ Can Med Assoc J* 2020;192:E1394–E1402.
8. Munigala S, Subramaniam DS, Subramaniam DP, et al. Decreased life expectancy in patients with acute and chronic pancreatitis. *Dig Dis Sci* 2025. https://doi.org/10.1007/s10620-025-08944-w.
9. Bang UC, Benfield T, Hyldstrup L et al. Mortality, cancer, and comorbidities associated with chronic pancreatitis: a Danish nationwide matched-cohort study. *Gastroenterology* 2014;146:989–994.
10. Czapári D, Váradi A, Farkas N et al. Detailed characteristics of post-discharge mortality in acute pancreatitis. *Gastroenterology* 2023;165:682–695.