

Best Practices for Chronic Pancreatitis Pain Management: A Comprehensive Evidence-Based Review

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Purpose: This study aimed to identify and synthesize high-quality evidence regarding pain management in individuals with chronic pancreatitis (CP) to serve as a reference for clinical practice interventions.

Methods: A thorough review encompassing databases, clinical guidelines, and information platforms, such as UpToDate, Guidelines International Network (GIN), National Institute for Health and Clinical Excellence (NICE), guide.medlive.cn, PubMed, Embase, Chinese Biomedical Literature Service System, China National Knowledge Infrastructure (CNKI), and Wanfang Data, was conducted to gather relevant evidence on pain management in CP. The search encompassed clinical decisions, evidence summaries, guidelines, systematic reviews, and expert consensus documents published up to October 2023. Two researchers independently evaluated included articles and extracted data pertinent to clinical practice.

Results: In total, 21 articles met the inclusion criteria for final analysis, comprising four guidelines, two expert consensus documents, one clinical decision, and 14 systematic reviews. The evidence was categorized into seven key treatment domains: pain evaluation, drug intervention, endoscopic treatment, surgical intervention, Traditional Chinese Medicine (TCM) therapies, other treatment modalities, and approaches tailored to specific populations. 19 individual recommendations were derived from these categories.

Conclusion: This review consolidates the best available evidence for pain management in CP. However, in clinical application, the optimal intervention should be individualized, taking into account patient preferences, the healthcare institution's technical capabilities, and other relevant factors. This approach is crucial for optimizing pain management and enhancing the quality of life in individuals with CP.

Keywords: abdominal pain, chronic pancreatitis, evidence-based medicine, evidence summary, pain management

Introduction

Chronic pancreatitis (CP) is a chronic inflammatory condition of the pancreatic tissue, attributed to genetic, environmental, and/or other risk factors, which may lead to atrophy of pancreatic acini and impaired pancreatic function.¹ Despite notable declines in the morbidity and mortality rates of pancreatitis in China over the past two decades, the healthcare burden remains significant due to the country's large population.² Abdominal pain, one of the most common clinical symptoms of CP, affects 60–94% of individuals with the condition and significantly diminishes their quality of life.^{3,4} This pain may stem from increased pressure in the pancreatic duct, interstitial hypertension, ischemia, neurogenic mechanisms, and other contributing factors.⁵ Several pain management strategies have been proposed in various guidelines,^{6,7} including changes in lifestyle, further use of analgesics, and surgical or endoscopic treatments.

Alcohol consumption is a risk factor for the progression of acute alcoholic pancreatitis to CP, and abstaining from alcohol can prevent the recurrence of acute pancreatitis and its progression to CP. A diet low in fat is effective for patients with pain in

the compensated phase; nonsteroidal anti-inflammatory drugs (NSAIDs) are the first choice for pain relief in CP patients, with opioid medications used if NSAIDs are ineffective. Endoscopic treatment is used for patients with pain due to pancreatic duct obstruction, and extracorporeal shock wave lithotripsy (ESWL), endoscopic treatment, and surgical intervention are options for the treatment of pancreatic stones. The current guidelines for pain management in CP patients face several issues, including a lack of standardized pain assessment tools, inconsistencies in recommendations between different regions or organizations, and some evidence being of low quality. Due to the inconsistencies or insufficient evidence supporting the guidelines, clinicians may face difficulties when devising treatment plans. They need to choose between different treatment options that may carry varying risks and benefits. This uncertainty could lead to anxiety or discomfort for physicians when making decisions. Patients may not receive the best treatment plans, which could result in poor pain control, decreased quality of life, and waste of medical resources. Moreover, inconsistent recommendations may also lead to misunderstandings and dissatisfaction between patients and their families, further exacerbating the tension in doctor-patient relationships. Therefore, this study aims to synthesize the best available evidence on pain management in CP through a systematic search, quality evaluation, and evidence extraction, offering clinical practitioners valuable insights for optimizing pain management strategies.

Data and Methods

Formulation of Evidence-Based Questions

The evidence-based questions for this study were developed using the PIPST framework:⁸

- P (population): Individuals diagnosed with chronic pancreatitis
- I (intervention): Pain management strategies
- P (professional): Medical and healthcare personnel
- O (outcome): Measures such as pain scores, quality of life (QOL), and length of hospital stay
- S (setting): Health and medical institutions
- T (type of evidence): Clinical practice guidelines, expert consensus statements, systematic reviews, and evidence summaries.

Search Strategy

A comprehensive literature search related to pain management in CP was conducted using the “6S” evidence model.⁹ The search terms in English included “Pancreatitis/Pancreatitis, Chronic/Chronic Pancreatitis/Chronic Pancreatitides/Pancreatitides, Chronic”, “Pain Management/Management, Pain/Managements, Pain/Pain Managements”, and “guideline/recommended practice/best practice/evidence summary/systematic review/Meta-analysis”. The databases searched included: (1) Clinical decision-making systems such as UpToDate; (2) Guideline networks, including the Guidelines International Network (GIN), National Institute for Health and Clinical Excellence (NICE), and guide.medlive.cn; and (3) Comprehensive literature databases such as Chinese Biomedical Literature Service System, China National Knowledge Infrastructure (CNKI), Wanfang Data, PubMed, Embase, and the Cochrane Library. The search encompassed all relevant literature up to October 15, 2023. For instance, the PubMed search strategy was structured as follows:

#1 (Pancreatitis [Title/Abstract]) OR (Pancreatitis, Chronic [Title/Abstract]) OR (Chronic Pancreatitis [Title/Abstract]) OR (Chronic Pancreatitides[Title/Abstract]) OR (Pancreatitides, Chronic [Title/Abstract])

#2 (Pain Management [Title/Abstract]) OR (Management, Pain [Title/Abstract]) OR (Managements, Pain [Title/Abstract]) OR (Pain Managements [Title/Abstract])

#3 (guideline [Title/Abstract]) OR (recommended practice [Title/Abstract]) OR (best practice [Title/Abstract]) OR (evidence summary [Title/Abstract]) OR (systematic review [Title/Abstract]) OR (Meta analysis [Title/Abstract])

#4 #1 AND #2 AND #3

Inclusion and Exclusion Criteria

The inclusion criteria were as follows: (1) studies involving individuals with CP; (2) studies focusing on pain management; (3) outcomes of interest, including pain scores, QOL, and length of hospital stay; (4) article types limited to

guidelines, best practices, evidence summaries, systematic reviews, and meta-analysis published in both China and international literature; and (5) articles available in Chinese and English.

Exclusion criteria were as follows: (1) study protocols or plans; (2) guidelines, systematic reviews, and expert consensus documents that had been updated or contained redundant content, as well as original research already incorporated into the aforementioned article types; and (3) articles that failed to meet quality evaluation standards.

Article Screening and Data Extraction

The article screening process was carried out independently by two assessors. Initially, titles and abstracts of potentially relevant articles were briefly reviewed, followed by a full-text assessment of articles deemed eligible. In cases of disagreement, a third assessor was consulted to resolve discrepancies and determine article inclusion. The information extracted from the included articles was managed using Excel and primarily comprised the title, article source, publication date, and article type.

Quality Evaluation of Articles

The quality of the included articles was assessed using standardized tools. Clinical practice guidelines were evaluated using the AGREE II tool,¹⁰ while expert consensus documents were assessed according to the Expert Consensus Evaluation Standard of the JBI Center for Evidence-Based Healthcare.¹¹ Clinical decisions were evaluated using the Critical Appraisal for Summaries of Evidence (CASE) tool.¹² The quality of systematic reviews was evaluated using the AMSTAR 2 tool.¹³

Evidence Summary and Grading

All included articles were thoroughly reviewed, and the evidence was graded using the Evidence Grading System of the JBI Center for Evidence-Based Healthcare.¹⁴ The level of recommendation was determined based on the FAME (Feasibility, Appropriateness, Meaningfulness, Effectiveness) framework.¹⁴

Results

Flowchart and Article Screening Results

The initial search identified 440 articles. After removing duplicates and articles that did not meet the inclusion criteria, 21 articles were selected for inclusion. These consisted of four guidelines,^{6,7,15,16} two expert consensus documents,^{17,18} one clinical decision,¹⁹ and 14 systematic reviews.^{20–33} The article screening process is illustrated in [Figure 1](#). The general information of the included articles is summarized in [Table 1](#).

Basic Features of Included Articles

The basic characteristics of the included articles are shown in [Table 1](#). The included articles were published between 2015 and 2023, with the majority being published in 2021, accounting for 33.3% of the total.

Quality Evaluation Results

Evaluation of Guidelines

Among the four guidelines, two were assigned a recommendation level of A indicating high quality,^{7,16} while the remaining two were assigned a level B.^{6,15} These results are presented in [Table 2](#).

Evaluation of Expert Consensus Statements

According to the Expert Consensus Evaluation Standard of the JBI Center for Evidence-Based Healthcare (2016 Edition), both expert consensus documents were evaluated positively, with all items receiving a “yes” rating.^{17,18} This indicates that the expert consensus documents were of high quality and were thus included in the study.

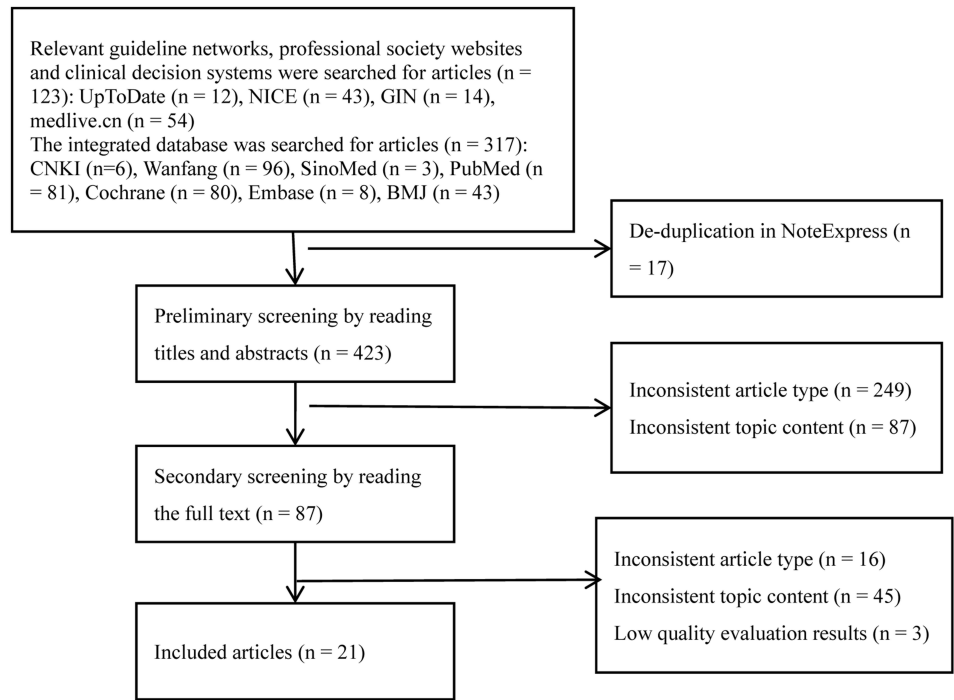


Figure 1 Flowchart of Article Screening.

Evaluation of Clinical Decisions

The quality assessment of the clinical decision obtained from UpToDate indicated that items 4, 5, and 9 were rated as “unclear”, while the remaining items received a “yes” rating.¹⁹ Despite these uncertainties, the clinical decision was deemed to be of high quality and was included for further analysis.

Table 1 General Information of Included Articles

Included Article	Article Source	Article Nature	Topic of Article	Publication Year
Drewes et al ¹⁵	PubMed	Guideline	Assessment of pain associated with chronic pancreatitis: An international consensus guideline	2021
Shimizu et al ⁷	PubMed	Guideline	Evidence-based clinical practice guidelines for chronic pancreatitis 2021 by JSGE	2021
Gardner et al ¹⁶	PubMed	Guideline	ACG Clinical Guideline: Chronic Pancreatitis	2020
Samarasekera et al ⁶	PubMed	Guideline	Pancreatitis: summary of NICE guidance 2018	2018
Bouça-Machado et al ¹⁷	PubMed	Expert Consensus	Position statement on the definition, incidence, diagnosis, and outcomes of acute on chronic pancreatitis	2023
Digestive System Diseases Professional Committee, Chinese Association of Integrative Medicine ¹⁸	CNKI	Expert Consensus	Consensus on the Diagnosis and Treatment of Chronic Pancreatitis with Integrated Traditional Chinese and Western Medicine (2020)	2020
Steven D Freedman et al ¹⁹	UpToDate	Clinical Decision	Chronic pancreatitis: Management	2021
Cohen et al ²⁰	PubMed	Systematic Review	Etiology, Diagnosis, and Modern Management of Chronic Pancreatitis: A Systematic Review	2023
Tringali et al ²¹	PubMed	Systematic Review	Covered self-expandable metal stents for pancreatic duct stricture: A systematic review and meta-analysis	2022

(Continued)

Table 1 (Continued).

Included Article	Article Source	Article Nature	Topic of Article	Publication Year
Perito et al ²²	PubMed	Systematic Review	Outpatient pain management in children with chronic pancreatitis: A scoping systematic review	2022
Hughes et al ²³	PubMed	Systematic Review	A meta-analysis of the long-term outcomes following surgery or endoscopic therapy for chronic pancreatitis	2022
Bhullar et al ²⁴	PubMed	Systematic Review	Prevalence of primary painless chronic pancreatitis: A systematic review and Meta-analysis	2022
Siddappa et al ²⁵	PubMed	Systematic Review	Endoscopic pancreatic duct stenting for pain palliation in selected pancreatic cancer patients: A systematic review and meta-analysis	2021
Mendieta et al ²⁶	PubMed	Systematic Review	Pain relief in chronic pancreatitis: Endoscopic or surgical treatment? A systematic review with meta-analysis	2021
Sofi et al ²⁷	PubMed	Systematic Review	Comparison of clinical outcomes of multiple plastic stents and covered metal stents in refractory pancreatic ductal strictures in chronic pancreatitis: A systematic review and meta-analysis	2021
Mohta et al ²⁸	PubMed	Systematic Review	Systematic review and meta-analysis: Is there any role for antioxidant therapy for pain in chronic pancreatitis	2021
Ratnayake et al ²⁹	PubMed	Systematic Review	Spinal cord stimulation for management of pain in chronic pancreatitis: A systematic review of efficacy and complications	2020
Kempeneers et al ³⁰	PubMed	Systematic Review	Efficacy of total pancreatectomy with islet autotransplantation on opioid and insulin requirement in painful chronic pancreatitis: A systematic review and meta-analysis	2019
Jafri et al ³¹	PubMed	Systematic Review	Efficacy of endotherapy in the treatment of pain associated with chronic pancreatitis: A systematic review and meta-analysis	2017
Jawad et al ³²	PubMed	Systematic Review	Short-and long-term post-operative outcomes of duodenum-preserving pancreatic head resection for chronic pancreatitis affecting the head of pancreas: A systematic review and meta-analysis	2016
Wang Chao et al ³³	Wanfang	Systematic Review	A meta-analysis on surgical treatments for chronic pancreatitis: Duodenum-preserving pancreatic head resection versus pylorus-preserving pancreaticoduodenectomy	2015

Evaluation of Systematic Reviews

Among the 14 systematic reviews assessed,^{20–33} the studies by Tringali et al,²¹ Siddappa et al²⁵ and Mendieta et al,²⁶ were rated as “grade A”, indicating high quality, with all evaluation criteria receiving a “yes” rating. Studies by Hughes et al,²³ Bhullar et al,²⁴ Sofi et al,²⁷ and Kempeneers et al³⁰ were rated as “grade B” due to receiving a “no” rating on item 1 (“Is a preliminary plan provided?”) and 4 (“Is the publication status, such as grey literature, considered in the inclusion criteria?”), while the remaining items were rated “yes”. Other systematic reviews were also rated as “grade B” due to “no” ratings for items 1, 4, and 11 (“Is the conflict of interest reported?”),^{20,22,28,29,31–33} though other items were rated “yes”. Despite these limitations, all systematic reviews were considered of sufficient quality for inclusion.

Evidence Summary

The evidence extraction and integration process identified seven categories of treatment for pain management for CP. These categories include pain evaluation, drug intervention, endoscopic treatment, surgical treatment, TCM treatment,

Table 2 Quality Evaluation Results of Clinical Guidelines

Standardized Percentage of Each Field	Included Guidelines			
	Drewes et al ¹⁵	Shimizu et al ⁷	Gardner et al ¹⁶	Samarasekera et al ⁶
1. Scope and Purpose	80.56%	86.11%	83.16%	88.88%
2. Participants	78.5%	87.2%	82.13%	77.22%
3. Rigorous Development	72.8%	72.92%	83.75%	43.75%
4. Clear Presentation	86.11%	86.11%	79.54%	87.43%
5. Guideline Application	58.33%	66.3%	61.34%	58.33%
6. Independent Compilation	92.4%	92.4%	92.4%	92.4%
≥30%	6	6	6	6
≥60%	5	6	6	4
Recommendation Level	B	A	A	B

other therapeutic modalities, and treatment for special populations. A total of 19 pieces of evidence were identified, with 11 classified as recommendation level A and eight as recommendation level B, as shown in [Table 3](#).

Discussion

Abdominal pain is one of the common clinical symptoms of CP, with many influencing factors, such as the state of the pancreas (acute or chronic inflammation, pancreatic duct obstruction and/or stenosis caused by stones), peripancreatic

Table 3 Summary of Evidence Results

Category	Evidence	Evidence Grade	Recommendation
Pain Evaluation	1. Evaluation time: within 2 hours of admission. ¹⁵	Level I	A
	2. Evaluation contents: 1) pain location, nature, duration, triggering and mitigating factors, radiating pain; 2) mental aspect: the impact of pain on mental health and social functioning; 3) quality of life (QOL): effect of working ability/occupational status on daily activities. ¹⁵	Level I	A
	3. Evaluation tools: Generally, pain assessment questionnaires can be categorized as follows: 1) One-dimensional tool: the Visual Analogue Scale (VAS), which is the most used tool. 2) Two-dimensional tool. 3) Multi-dimensional tool: Examples include the Izbicki pain score, Comprehensive Pain Assessment Tool for Chronic Pancreatitis (COMPAT). 4) Mental and emotional evaluation tool: These tools are used in conjunction with QOL assessments. In addition, Quantitative Sensory Testing (QST) can also be used to evaluate pain in patients with CP. ^{15,18}	Level 5	B
	4. Additional evaluation parameters: Pain can adversely affect the QOL and mental health; therefore, these factors are essential components of the evaluation of patients with CP. Recommended tools for assessing QOL include the MOS item short form health survey (SF-36) or SF-12, European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30), and Pancreatitis Quality of Life Instrument (PANQOLI). For evaluating mental health, the recommended tools include the Hospital Anxiety and Depression Scale (HADS) and the Center for Epidemiologic Studies Depression Scale (CESD). ¹⁵	Level I	A
	5. Cross-sectional imaging can help identify the underlying causes of increased pain in patients with CP, which can be attributed to acute-on-chronic pancreatitis (ACP), complications associated with CP, or other conditions that lead to abdominal pain unrelated to CP. Abdominal pain may arise from increased pain related to chronic pain syndrome. ¹⁷	Level 5	A

(Continued)

Table 3 (Continued).

Category	Evidence	Evidence Grade	Recommendation
Drug treatment	6. According to the World Health Organization's guidelines for pain management, a stepwise approach is recommended for pain relief, utilizing non-steroidal anti-inflammatory drugs (NSAIDs), non-narcotic analgesics, and anesthetics. ^{6,7,16,19}	Level I	A
	7. Pancreatic enzyme replacement therapy (PERT) alleviates abdominal distension and improves pancreatic exocrine insufficiency (PEI); however it has been shown to be ineffective for pain relief. ⁷	Level I	B
	8. Proteolytic enzyme inhibitors reduce trypsin activity, thereby mitigating the progression of pancreatitis and providing pain relief. ⁷	Level I	B
	9. Antioxidants are effective in reducing oxidative stress and may offer pain relief; however, some patients may experience mild adverse effects. ^{16,28}	Level I	B
Endoscopic treatment	10. Endoscopic treatment is considered a safe and effective method for pain relief in patients with CP. It is less invasive with fewer complications compared to surgical interventions, making it a preferred option for certain patients. ³¹	Level I	A
	11. Long-term repeated endoscopic treatment (more than 2–3 years) is not recommended for chronic pain relief in patients with chronic pancreatitis. ⁷	Level I	A
	12. Endoscopic pancreatic duct stenting relieves obstructive pain, with covered self-expanding metallic stents showing superior performance. However, caution is advised due to the high incidence of adverse events associated with this procedure. ^{21,25,27}	Level I	B
Surgical treatment	13. Surgical treatment is preferred for managing pain in CP, as it provides a high rate of complete pain control and improves long-term physical health compared to endoscopic therapy. ²³	Level I	A
	14. Surgical treatment is preferred for effective pain relief in patients with obstructive CP. ²⁶	Level I	B
	15. Total pancreatectomy with islet autotransplantation (TPIAT) is recommended for patients with refractory chronic pain that is unresponsive to other treatment modalities. ^{16,30}	Level I	A
	16. Duodenum-preserving pancreatic head resection (DPPHR) has been shown to effectively control long-term pain (5–7 years post-operation) when compared to pylorus-preserving pancreaticoduodenectomy (PPPD). ^{31,32}	Level I	A
TCM treatment	17. Characteristic treatments in TCM include: 1) acupuncture analgesia; 2) external application of TCM ointments; 3) Chinese medicine retention enemas; 4) additional methods such as abdominal massage therapy, acupoint application therapy, acupoint injection therapy, acupoint catgut embedding therapy. ¹⁸	Level 5	A
Other treatments	18. Spinal cord stimulation and neurolytic celiac plexus block (NCPB) are options for managing chronic pain in individuals with CP. ^{16,29}	Level I	B
Treatment of special population	19. Endoscopic and surgical interventions improve pain management in pediatric patients with CP, with TPIAT yielding the most durable results. However, evidence on the efficacy of analgesics, anti-oxidants or other supplements, dietary adjustments, integrative medicine, or other health interventions, including or local nerve blocks remains limited. ²²	Level I	B

structures (common bile duct stenosis, gastric outlet or duodenal obstruction), and/or local complications (eg, pseudocysts), and patient-related factors (psychosocial, comorbidities).³⁴ Abdominal pain can occur at the onset or during the course of the disease, but some patients still have pain symptoms after 10 years or more,⁴ and the intensity and frequency of pain attacks significantly affect the patient's quality of life and psychological state.³⁵ Therefore, medical personnel need to pay attention to the assessment and treatment of pain in CP patients.

It is important to note that pain in CP patients is a complex sensory experience with many influencing factors. Assessment should consider the variability in clinical presentation and its impact on the patient's quality of life and mental health. A comprehensive and accurate assessment can make clinical pain management easier, more accurately record treatment responses and outcomes, and improve the pain experience of CP patients. Among the pain assessment tools for CP patients, only a few questionnaires have been tested for all validity dimensions. In the pain assessment tools for CP patients, only COMPAT has been fully validated. Additionally, when assessment tools are used in clinical or research settings, translating questionnaires is also a challenge. When questionnaires are translated into another language, key information from the questionnaire may be lost, which can also reduce the reliability of research results when comparing them internationally. Currently, only the brief pain inventory (BPI) and McGill pain questionnaire (MPQ), two multidimensional pain assessment tools, have been clinically validated after being translated into multiple languages. The lack of standardized and effective pain assessment tools for CP poses difficulties for clinical treatment and research.³⁴ Therefore, there is an urgent need to develop precise and widely applicable pain assessment tools for CP patients, which would not only benefit CP patients but also serve as a template for the symptom assessment of pain in other gastrointestinal diseases.

Additionally, the treatment of CP is a comprehensive, multidisciplinary approach, and both domestic and international guidelines mention a stepwise treatment method to progressively address the pain of CP patients.^{6,7} All CP patients are advised to quit smoking and abstain from alcohol, and it is also recommended to improve their dietary structure. For patients without obstruction, medical treatment is suggested first, along with small, frequent meals and a low-fat diet.⁷ The use of pain medication follows the WHO's three-step analgesic ladder, starting with weak analgesics and gradually moving to stronger ones, beginning with nonsteroidal anti-inflammatory drugs (NSAIDs) or acetaminophen, then introducing weak opioids, and finally resorting to strong opioid analgesics. For patients with exocrine insufficiency, systematic reviews have indicated that oral pancreatic enzyme preparations can improve the absorption of fats and fat-soluble vitamins, alleviating symptoms of steatorrhea and other abdominal symptoms.⁷ Approximately 30–60% of CP patients with refractory pain treated with medication require invasive surgery, such as endoscopic intervention or surgery. The most common causes of refractory pain in CP patients are obstruction of the main pancreatic duct (caused by stones or stenosis), biliary obstruction, and pancreatic pseudocysts.³⁴ The main purpose of endoscopic treatment for CP patients is to decompress and place drainage tubes, remove stones to relieve pain, and endoscopic procedures include stent implantation and lithotripsy.⁷ When endoscopic intervention and conservative treatment are ineffective, surgical treatment is considered, with common surgical procedures including longitudinal pancreaticojejunostomy, various types of pancreatic head resections, and resections of the body and tail of the pancreas. Several systematic reviews have pointed out that early surgical intervention results in significantly better postoperative pain relief and improved quality of life compared to early endoscopic treatment for CP patients.^{23,26,30} Furthermore, behavioral interventions should be part of the multidisciplinary approach to chronic pain management, especially when psychological issues arise, including cognitive-behavioral therapy, mindfulness techniques, and hypnosis.³⁶ Finally, for CP patients with refractory chronic pain unresponsive to the aforementioned treatments, options such as pancreatic islet autotransplantation, spinal cord stimulation, and celiac plexus block may be considered.

This study systematically reviews the literature on pain management in patients with CP, evaluates the quality of included literature, and integrates evidence extraction to form 19 pieces of evidence across 7 categories: pain assessment, pharmacological interventions, endoscopic treatments, surgical treatments, traditional Chinese medicine treatments, other treatments, and treatments for special populations, providing a reference for clinical practice. However, this study still has limitations, including insufficient comprehensiveness and representativeness of the evidence, timeliness and applicability of the evidence, and challenges in dissemination and implementation. Future research can build on this foundation to conduct more exploration, continuously supplementing or replacing the evidence summary results.

Conclusion

In conclusion, this study consolidates the best available evidence for the management of pain in CP, providing a foundation for evidence-based clinical practice. However, the selection of optimal interventions in clinical settings should be tailored to each patients' clinical condition, preferences, and the resources available at healthcare institutions, with the goal of improving both pain management and overall quality of life. This study has some limitations, fails to include more latest research data, and the latest research progress can be discussed in the future to enhance its timeliness and prospective.

Abbreviations

CP, Chronic pancreatitis; GIN, Guidelines International Network; NICE, National Institute for Health and Clinical Excellence; CNKI, China National Knowledge Infrastructure; CASE, Critical Appraisal for Summaries of Evidence; TCM, Traditional Chinese Medicine; NSAIDs, Anti-inflammatory drugs; ESWL, Extracorporeal shock wave lithotripsy; QOL, Quality of life; VAS, Visual Analogue Scale; COMPAT, Comprehensive Pain Assessment Tool; QST, Quantitative Sensory Testing; BPI, Brief pain inventory; MPQ, McGill pain questionnaire; PANQOLI, Pancreatitis Quality of Life Instrument; HADS, Hospital Anxiety and Depression Scale; CESD, Center for Epidemiologic Studies Depression Scale; ACP, Acute-on-chronic pancreatitis; PERT, Pancreatic enzyme replacement therapy; PEI, Pancreatic exocrine insufficiency; TPIAT, Total pancreatectomy with islet autotransplantation.

Funding

Taizhou People's Hospital hospital-level research project nursing special (HLZD202404).

Disclosure

The authors report no conflicts of interest in this work.

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