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Analysis of the 2024 American College of Gastroenterology Guidelines: Management of Acute Pancreatitis

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Acute pancreatitis (AP) remains one of the most common gastroenterological diseases requiring hospitalisation, and is associated with significant morbidity and mortality, especially in severe cases. Despite decades of research, the optimal treatment of AP continues to evolve. In February 2024, the American College of Gastroenterology (ACG) published Updated Guidelines for the Management of AP, culminating in a thorough review of the evidence and expert consensus. This article comprehensively analyzes these new recommendations, highlighting key changes, their impact on clinical practice, and challenges and directions for future research. Particular attention will be paid to diagnosis, initial resuscitation, nutritional support, strategies for treating complications and preventing recurrence, and a comparative analysis of previous guidelines. This review aims to provide clinicians with an updated understanding of best practices in managing patients with AP.

Acute pancreatitis (AP) is an acute inflammatory disease of the pancreas that can range from mild to severe, life–threatening forms with systemic complications and organ failure. The annual incidence of AP is approximately 30–50 cases per 100,000 population in developed countries, and this figure is trending upward [1]. Despite significant advances in understanding the pathophysiology and clinical management of AP, mortality in severe pancreatitis remains high, reaching 15–20% [2]. Effective management of AP requires clear, evidence–based guidelines. Previous guidelines, such as those published by the ACG in 2013, have played a key role in standardising treatment approaches. However, the constant stream of new research, particularly on the role of early fluid resuscitation, optimal nutritional support, and the timing and methods of intervention in necrosis, has necessitated an update to these guidelines.

In February 2024, a group of experts from the American College of Gastroenterology (ACG), led by Gardner, Vega, Pearson, and Chari, published the new 'American College of Gastroenterology Guidelines: Management of Acute Pancreatitis' in The American Journal of Gastroenterology [3]. These recommendations are based on a systematic literature review, and the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system is used to assess the strength of recommendations and the quality of evidence. This article aims to conduct an in–depth analysis of the new 2024 ACG guidelines, highlight their key provisions, and discuss the clinical implications and potential challenges for their implementation in real clinical practice.

Methodology for developing the 2024 ACG recommendations

The development of the new 2024 ACG guidelines was based on a rigorous evidence–based medicine methodology. A working group consisting of experts in gastroenterology, intensive care, and surgery conducted a comprehensive systematic review of the current scientific literature published since the previous update of the guidelines.

A key aspect of the methodology was the use of the GRADE system. This system allows not only to formulate recommendations, but also to clearly indicate the strength of each recommendation (strong or weak) and the quality of supporting evidence (high, moderate, low or very low) [4]. Strong recommendations mean that the benefits of the intervention clearly outweigh the risks, or vice versa, and they are applicable to most patients. Weak recommendations indicate less confidence in the balance of benefits and risks, allowing for greater flexibility in clinical decision–making, taking into account the individual characteristics of the patient and their preferences. The use of GRADE increases the transparency and reproducibility of guidelines, which is critically important for clinicians.

Key recommendations and detailed analysis

The new 2024 ACG guidelines cover the entire spectrum of acute pancreatitis management, from initial diagnosis to long–term prevention of recurrence. Let's take a closer look at the key aspects.

Diagnosis of acute pancreatitis

The diagnosis of AP is traditionally based on the presence of at least two of three criteria: (1) characteristic abdominal pain (acute, persistent, intense, in the upper abdomen, often radiating to the back); (2) serum amylase or lipase levels exceeding the upper limit of normal by at least three times; (3) characteristic signs of pancreatitis on imaging (e.g., CT, MRI, or ultrasound). The ACG 2024 guidelines confirm these criteria. Particular emphasis is placed on the fact that elevated lipase levels are a more specific and sensitive marker than amylase and remain elevated for longer. Routine use of contrast–enhanced CT scanning for the diagnosis of AP is not recommended at the initial stage if the diagnosis is clinically obvious and there is no suspicion of complications or alternative diagnoses. CT is indicated for assessing severity or complications in patients who do not improve within 48–72 hours or whose condition worsens [3].

Initial treatment and resuscitation measures

Early and aggressive intravenous hydration remains the cornerstone of initial treatment. ACG 2024 emphasises the importance of starting hydration immediately after diagnosis. Isotonic crystalloid solutions (e.g., Ringer's lactate solution) at a rate of 5–10 ml/kg/hour are recommended for the first 12–24 hours for patients without cardiovascular or renal disease.

Ringer's lactate solution has an advantage over saline solution due to a lower risk of acidosis and, possibly, a lower incidence of SIRS (systemic inflammatory response syndrome) [3].

Analysis: Notwithstanding the prevalence of aggressive hydration as the prevailing standard, recent studies have begun to interrogate the 'aggressiveness' of this approach. These studies have demonstrated that a moderate hydration strategy can be equally efficacious in reducing the risk of fluid overload, a particularly salient finding in patients with comorbidities [5]. ACG 2024 will likely consider this by emphasising individualisation and monitoring clinical parameters (heart rate, blood pressure, diuresis, haematocrit). It is recommended that the infusion rate be titrated based on clinical improvement, as evidenced by decreased haematocrit, decreased blood urea nitrogen (BUN), and improved diuresis.

The provision of pain relief: Providing adequate pain relief is of critical importance for maintaining patient comfort. The utilisation of intravenous opioids, such as fentanyl or morphine, is strongly advocated, with meticulous and regular evaluation of pain management. It is evident that meperidine offers no significant advantages over other opioids and is not recommended due to the risk of neurotoxicity with prolonged use [3]. The following essay will provide a comprehensive overview of the relevant literature on the subject.

Nutritional support: ACG 2024 strongly advocates for initiating oral feeding in mild GC, contingent upon alleviating pain and the patient's ability to tolerate food. Early enteral feeding (within 24–48 hours) is recommended in cases of severe PG or intolerance to oral feeding, preferably via a nasojejunal tube. The administration of parenteral nutrition should be considered in cases where enteral feeding is either not possible or not tolerated for 5–7 days [3]. Analysis: This recommendation is consistent with previous guidelines and emphasises the importance of maintaining the intestinal barrier and preventing bacterial translocation. Enteral feeding has been demonstrated to result in a reduced incidence of infectious complications and mortality when compared with parenteral feeding.

The determination of the aetiology of the condition is of paramount importance

The identification of the underlying cause of AP is imperative for the prevention of its recurrence. ACG 2024 recommends routine abdominal ultrasound to detect gallstone disease as the underlying cause of acute pancreatitis (AP). In cases of idiopathic pancreatitis (i.e., when no established cause has been identified following an initial evaluation), the use of endoscopic ultrasound (EUS) or magnetic resonance cholangiopancreatography (MRCP) is recommended to detect microlithiasis or other structural abnormalities that may not be detected by standard ultrasound [3]. Cholangiography: The indication for endoscopic retrograde cholangiopancreatography (ERCP) is cholangitis or biliary obstruction, as confirmed by imaging. However, this procedure is not routinely recommended for gallstone pancreatitis in the absence of obstruction.

The following essay will provide a comprehensive overview of the relevant literature on the subject.

The assessment of severity and prognosis

The early and accurate assessment of severity is crucial for risk stratification and determining the appropriate level of care. ACG 2024 underscores the limitations of existing severity assessment systems, such as Ranson's, Glasgow, APACHE II, and BISAP, highlighting their inability to comprehensively and accurately assess patient severity. The clinical assessment remains paramount. A significant indicator is the presence of systemic inflammatory response syndrome (SIRS) that persists for a duration exceeding 48 hours, accompanied by manifestations of organ failure, including but not limited to the respiratory, renal, and cardiovascular systems. Persistent SIRS has been identified as a significant predictor of severe sepsis [3]. The following essay will provide a comprehensive overview of the relevant literature on the subject.

Biomarkers: It is evident that the haematocrit level at admission and its changes, and the blood urea nitrogen (BUN) level are useful indicators for assessing the risk of mortality and necrosis. An increase in BUN (or the absence of a decrease in haematocrit within 24 hours) may indicate inadequate hydration and an increased risk [3]. C–reactive protein (CRP) levels are a valuable tool for assessing severity in the post–intervention period, typically within 48–72 hours.

Treatment of complications

The management of complications arising from acute pancreatitis, including but not limited to cases of pancreatic necrosis and fluid collections, represents a significant challenge to medical practitioners. The following essay will provide a comprehensive overview of the relevant literature on the subject.

In the case of pancreatic sterile necrosis, the literature does not recommend the administration of routine antibiotic prophylaxis [3]. This finding is consistent with previous guidelines and numerous studies showing no benefits and potential harm (development of resistance).

The diagnosis of infected necrosis is suspected when the patient's clinical condition deteriorates, presenting with symptoms such as fever and leukocytosis. This suspicion is confirmed through positive bacteriological culture, obtained through aspiration under imaging guidance. Broad–spectrum antibiotics penetrating pancreatic tissue (e.g., carbapenems, fluoroquinolones, metronidazole) are recommended when necrosis is suspected or confirmed.

Intervention in necrosis: ACG 2024 emphasises a 'step–up' approach and deferred intervention when possible. This approach is considered to be a conservative treatment. If drainage is deemed necessary, the initial procedure is a percutaneous or endoscopic approach. Should this approach be unsuccessful, the subsequent procedure is a minimally invasive surgical necrosectomy. Open necrosectomy is a procedure that should only be considered as a last resort. Interventions should be delayed for a minimum period of four weeks following the onset of the disease to allow the necrotic tissue to become walled off (formation of 'walled–off necrosis' – WON) [3]. This approach has been shown to reduce the risk of bleeding, formation of new fistulas, and other complications.

Pseudocysts and other fluid collections: Asymptomatic pseudocysts or other fluid collections usually do not require drainage, as many resolve spontaneously. It is only in the presence of symptoms (pain, obstruction, infection) or complications that drainage is indicated [3]. Endoscopic drainage is preferable to surgical drainage if feasible.

Special patient groups

Pregnancy: Gallstone disease has been identified as the primary cause of AP during pregnancy. Ultrasound is a safe diagnostic method. The treatment approach is predominantly conservative in nature. In the second trimester, cholecystectomy may be considered [3].

The following discussion pertains to children: The treatment principles of AP in children are analogous; however, the etiology may differ (trauma, medication, genetic).

Patients suffering from chronic pancreatitis: The treatment of exacerbation of chronic pancreatitis is guided by the principles of acute pancreatitis, with consideration given to the existing structural changes.

The objective is to prevent recurrence

Patients who have previously experienced AP must adopt effective prevention strategies.

Gallstone pancreatitis: In the case of patients suffering from gallstone AP, it is recommended that they undergo a cholecystectomy if this is deemed to be a viable option, and preferably during the same admission or within 2–4 weeks of discharge to prevent recurrence [3]. This recommendation is supported by a robust body of evidence, which lends substantial credibility to the assertion. The following essay will provide a comprehensive overview of the relevant literature on the subject.

The present paper sets out the argument that alcoholic pancreatitis is a condition that must be taken seriously, and that counselling on alcohol abstinence is of the utmost importance.

Hypertriglyceridaemic pancreatitis: intensive therapy is indicated to reduce triglyceride levels (insulin, heparin, plasmapheresis in severe cases) and long–term drug therapy is recommended (fibrates, omega–3 fatty acids) [3].

The treatment of autoimmune pancreatitis involves the administration of steroids.

Idiopathic pancreatitis: consideration should be given to EUS and/or MRCP and genetic testing (e.g., PRSS1, SPINK1, CFTR) in selected cases.

A comparison with previous recommendations and other guidelines

The 2024 ACG guidelines generally corroborate many of the fundamental principles established in previous iterations (e.g., ACG 2013) and other international guidelines (e.g., IAP/APA, AGA). However, it is important to note several significant nuances and refinements:

1. *Hydration*: Despite the long–standing recommendation of early aggressive hydration, the new guidelines may emphasize individualization and monitoring more, in light of the ongoing debate surrounding the potential risks of overhydration. The utilisation of Ringer's lactate solution remains a prevalent preference.

2. *Nutritional support*: The emphasis on early oral feeding in mild AP and early enteral feeding in severe AP is consistent.

3. *Tactics for Necrosis*: A substantial body of evidence confirming its safety and efficacy has reinforced the principle of 'step–up' and deferral of interventions in pancreatic necrosis.

4. *Determining the aetiology of the condition* has seen an increased emphasis on EUS and MRCP for idiopathic pancreatitis, reflecting the enhanced diagnostic accuracy of these methods.

5. *The role of CT* is to establish a clear distinction between its function in the diagnosis of ailments (operating in a capacity as a backup method) and its role in the assessment of complications.

6. *Antibiotic prophylaxis*: confirmation of the rejection of routine antibiotic prophylaxis.

The recently published ACG 2024 guidelines, in alignment with other international recommendations, are designed to minimise invasive procedures and to promote physiological processes wherever feasible. The guidelines emphasise early diagnosis, intensive supportive therapy, and a personalised approach to complications. This paradigm shift signifies transitioning from conventional surgical interventions to minimally invasive and conservative methodologies.

The clinical implications and implementation challenges of this approach are discussed

The publication of the updated ACG 2024 guidelines has significant clinical implications but poses particular challenges for their full implementation. The following essay will provide a comprehensive overview of the relevant literature on the subject.

The following section will address the clinical implications of the points above.

1. The new guidelines will promote further standardisation of approaches to treating GI bleeding. This is because they will reduce variability in clinical practice and potentially improve treatment outcomes. Standardisation of care is therefore a key objective. The following essay will provide a comprehensive overview of the relevant literature on the subject.

2. It is hypothesised that improved outcomes will be achieved through adherence to evidence–based recommendations for early hydration, nutritional support, and delayed interventions for necrosis. This may result in reduced morbidity, mortality, and length of hospitalisation.

3. The cost–effectiveness of the proposed initiative is to be considered. It is imperative to minimise the utilisation of unnecessary antibiotics, routine CT scans, and early surgical interventions, as this can reduce treatment costs without compromising outcomes.

4. The objective of this section is to raise awareness. The document is considered a significant educational resource for clinicians at all levels. The following essay will provide a comprehensive overview of the relevant literature on the subject.

The following discussion will address the challenges encountered during the implementation process

1. The following resources are available for consultation: It is important to note that not all healthcare facilities, particularly those in resource–constrained settings, possess the requisite equipment (e.g., for EUS) or the necessary specialists for endoscopic interventions.

2. In education and training, there is a particular emphasis on acquiring knowledge and skills through structured learning experiences. Healthcare personnel must receive ongoing education to ensure comprehension and compliance with the new recommendations. This encompasses training in monitoring hydration, accurate severity assessment, and prompt identification of complications.

3. Alterations to established routines may be met with resistance, for example, in the routine prescription of antibiotics for necrosis or early surgical intervention.

4. The provision of general principles is the primary function of the guidelines. However, it is essential to note that PD is a heterogeneous disease, so deviations from standard recommendations may be required for some patients. Clinical judgement remains critical.

5. The allocation of financial resources is instrumental in facilitating additional research endeavours to address knowledge gaps and enhance the efficacy of recommendations.

Suggestions for further investigation are provided below:

Notwithstanding the substantial progress made, several aspects of HF management continue to be controversial and thus require further investigation. Despite their comprehensiveness, the ACG 2024 guidelines highlight these 'gaps'.

1. *Optimal volume and type of fluid therapy*: Further research is required to ascertain the precise volume and rate of hydration that will minimise the risks of fluid overload while ensuring adequate perfusion. The ongoing pertinence of studies comparing different types of crystalloids is also a salient factor.

2. *The role of biomarkers* is to facilitate the identification of severe SIRS, infected necrosis, and the response to treatment.

3. *Developing and validating improved prognostic models* that combine clinical, laboratory, and radiological indicators is a key objective of this project.

4. *The function of the microbiome* is to investigate the impact of the gut microbiome on the development and course of AP, as well as potential therapeutic interventions (e.g., probiotics, faecal transplantation) to modulate the microbiome.

5. It is evident that further research is required to comprehend the *long–term ramifications of AP*, including the emergence of exocrine pancreatic insufficiency, diabetes mellitus, and chronic pancreatitis. Moreover, there is a necessity for developing strategies that address the prevention and treatment of these consequences.

6. *Genetic factors*: the objective is to deepen understanding of genetic susceptibility to AP, and its impact on severity and recurrence.

7. *The efficacy of novel therapeutic agents* is a field of research that focuses on developing new pharmacological agents that target specific links in the pathogenesis of AP. Examples of such agents include anti–inflammatory drugs and protease inhibitors.

8. *Interventions*: comparative studies of different minimally invasive methods of treating complications (e.g., endoscopic versus percutaneous) in large randomised controlled trials.

Conclusion

The 2024 American College of Gastroenterology Guidelines for the Management of Acute Pancreatitis, which have been updated, represent a significant step forward in the standardisation and optimisation of the management of this complex disease. The recommendations provided result from a thorough evidence review, and they are clear and strong in nature. They relate to diagnosis, initial resuscitation, nutritional support, complications treatment, and recurrence prevention. The following key conclusions were reached: firstly, the importance of early, individualised fluid therapy using Ringer's lactate solution was confirmed; secondly, the preference for early enteral nutrition was expressed; thirdly, routine antibiotic prophylaxis was rejected; and finally, minimally invasive, delayed interventions in infected pancreatic necrosis were identified as a priority. While these recommendations provide a robust foundation for current clinical practice, their practical implementation will necessitate ongoing education of healthcare personnel, adaptation to local resources, and continued research to address existing knowledge gaps. Implementing these guidelines in clinical practice can enhance treatment outcomes and quality of life for patients suffering from acute pancreatitis by ensuring care is provided based on the most recent scientific evidence.

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