



Management of severe acute pancreatitis: all hands to the pump

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Acute pancreatitis is one of the most common diseases in gastrointestinal, liver and pancreatic diseases, with about 300,000 annual admissions in the United States (1). Acute pancreatitis is complicated by pancreatic necrosis in 20%, and the mortality rate is 20% to 30% once infection occurs in pancreatic necrosis (2). Severe acute pancreatitis (SAP) was purely a surgical disease in 19th century due to its poor prognosis (3), but the importance of multidisciplinary approach is increasingly recognized as shown in the recent publication of French guidelines (4) by the collaboration of multisociety of surgery, gastroenterology, digestive endoscopy, interventional radiology, intensive care and nutrition.

The guidelines provide 24 recommendations in three phases of diagnosis, initial management (within 1 week), and late complications (after 1 week). At diagnosis, evaluation of severity and etiology of acute pancreatitis is essential for patient selection who needs intensive care as well as endoscopic treatment for gallstone pancreatitis. Intensive care plays an important role in the initial phase of SAP and early implementations of nutritional support, especially enteral nutrition, is emphasized. Finally, in the late phase of SAP, management of infection in pancreatic fluid collections (PFCs) plays an important role for improvement in clinical outcomes. Prophylactic antibiotics do not have a role and the presence of infection should be evaluated by procalcitonin and CT. Procalcitonin-guided use of antibiotics is shown to reduce the use of antibiotics

without increase in infection in a recent randomized controlled trial (RCT) (5). While delayed interventions with a step-up approach are preferred in infected PFCs, timely interventions, percutaneous and/or endoscopic, is necessary, too. Step-up necrosectomy is performed in cases without response to drainage but is associated with severe adverse events such as bleeding or perforation (2). Endoscopic step-up approach is preferred whenever possible for infected necrosis due to its less invasiveness, but radiological or surgical approach is sometimes needed if the lesion is located apart from the gastrointestinal lumen. In addition to infected necrosis, vascular complications such as pseudoaneurysm can be potentially fatal and need endovascular treatment by radiologists. Thus, supports by surgeons and radiologists are mandatory in complex cases and necrosectomy should be performed in institutions where multidisciplinary expertise are available.

While establishment of the multi-society guidelines for SAP is one step forward to the improvement of this potentially deadly disease, adherence to recommendation of the guidelines is another key to successful management of SAP. For example, the current scoring systems for severity assessment used for acute pancreatitis such as Ranson's criteria and the Bedside Index of Severity in Acute Pancreatitis (BISAP) score are too complex and need to be repeated after hospitalization. As shown in several surveys (6,7), poor compliance was reported in terms of nutrition and prophylactic antibiotics. Further

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attempts are necessary to facilitate easy use of guidelines such as pancreatitis bundles provided in the Japanese clinical practice guidelines (8).

Finally, there are still some areas of uncertainty in the management of SAP. In the initial phase, aggressive resuscitation using lactated Ringer's solution is recommended in SAP but a recent WATERFALL study (9), showed too aggressive resuscitation was associated with volume overload without improvement in clinical outcomes. Furthermore, in the late phase, a recent development of lumen-apposing metal stents (LAMS) has changed clinical practice of local complications of SAP. A structured approach integrating LAMS reportedly improved clinical outcomes of PFC (10). Given the easy access to endoscopic necrosectomy through LAMS, early drainage and necrosectomy are currently investigated as opposed to conventional step-up approach (11). Furthermore, the impact of disconnected pancreatic duct syndrome is intensely investigated on long term outcomes such as recurrence and pancreatic function (12,13).

In summary, we should keep in mind that SAP cannot be managed without timely interventions through the collaboration of the multidisciplinary experts in surgery, gastroenterology, digestive endoscopy, interventional radiology, intensive care, and nutrition. The evidence-based guidelines always look good on paper but further attempts to better adherence by clinicians to achieve global improvement of prognosis of SAP. We need all hands to the pump to conquer this complex and deadly disease.

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References

1. Peery AF, Crockett SD, Murphy CC, et al. Burden and Cost of Gastrointestinal, Liver, and Pancreatic Diseases in the United States: Update 2021. *Gastroenterology* 2022;162:621-44.
2. Baron TH, DiMaio CJ, Wang AY, et al. American Gastroenterological Association Clinical Practice Update: Management of Pancreatic Necrosis. *Gastroenterology* 2020;158:67-75.e1.
3. Chang YC. Is necrosectomy obsolete for infected necrotizing pancreatitis? Is a paradigm shift needed? *World J Gastroenterol* 2014;20:16925-34.
4. Jaber S, Garnier M, Asehnoune K, et al. Guidelines for the management of patients with severe acute pancreatitis, 2021. *Anaesth Crit Care Pain Med* 2022;41:101060.
5. Siriwardena AK, Jegatheeswaran S, Mason JM, et al. A procalcitonin-based algorithm to guide antibiotic use in patients with acute pancreatitis (PROCAP): a single-centre, patient-blinded, randomised controlled trial. *Lancet Gastroenterol Hepatol* 2022;7:913-21.
6. Machicado JD, Wani S, Quingalahua E, et al. Practice patterns and adherence to nutrition guidelines in acute pancreatitis: An international physician survey. *Pancreatology* 2021;21:642-8.
7. Lluís N, Asbun H, Besselink MG, et al. International multidisciplinary survey on the initial management of acute pancreatitis: Perspective of point-of-care specialists focused on daily practice. *J Hepatobiliary Pancreat Sci* 2022. [Epub ahead of print]. doi: 10.1002/jhbp.1201.
8. Takada T, Isaji S, Mayumi T, et al. JPN clinical practice guidelines 2021 with easy-to-understand explanations for the management of acute pancreatitis. *J Hepatobiliary Pancreat Sci* 2022;29:1057-83.
9. de-Madaria E, Buxbaum JL, Maisonneuve P, et al. Aggressive or Moderate Fluid Resuscitation in Acute

- Pancreatitis. *N Engl J Med* 2022;387:989-1000.
10. Bang JY, Wilcox CM, Arnoletti JP, et al. Validation of the Orlando Protocol for endoscopic management of pancreatic fluid collections in the era of lumen-apposing metal stents. *Dig Endosc* 2022;34:612-21.
 11. Nakai Y, Shiomi H, Hamada T, et al. Early versus delayed interventions for necrotizing pancreatitis: A systematic review and meta-analysis. *DEN Open* 2022;3:e171.
 12. Basha J, Lakhtakia S, Nabi Z, et al. Impact of disconnected pancreatic duct on recurrence of fluid collections and new-onset diabetes: do we finally have an answer? *Gut* 2021;70:447-9.
 13. Hamada T, Iwashita T, Saito T, et al. Disconnected pancreatic duct syndrome and outcomes of endoscopic ultrasound-guided treatment of pancreatic fluid collections: Systematic review and meta-analysis. *Dig Endosc* 2022;34:676-86.

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