

Diagnosis and Therapy of Acute Pancreatitis

Early Phase \leq 4weeks

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Disclosure



Leerdoelen

1. Voeding en acute pancreatitis
2. I.V. vloeistof therapie
3. Wanneer een CT-scan?
4. Wanneer stuur je iemand naar een expert center?
5. Wanneer draineer je vloeistofcollecties?

Gebaseerd op

- NL/Europese IAP/APA 2013 richtlijn
- AGA 2018 richtlijn

Incidence / prognosis AP

- I= 5-30/ 100.000
- 20% moderate-severe course: necrosis and/or multi organ failure
- Mortality rate 5-8% (30% in severe AP)
- 8-10% develops chronic pancreatitis
- 17% recurrent attacks => 26% develops chronic pancreatitis

Pancreas 2018;47: 653–666

Clin Gastroenterol Hepatol. 2016 May;14(5):738-46.

Am J Gastroenterol 2006; 101:2379-400.

2013 AIP/APA guidelines

Etiology

Biliary (eg, gallstones, microlithiasis)

Alcohol

60-80%

Other causes:

- Anatomic variants
- Ampullary/ ductal obstructions
- Metabolic (eg, hypercalcemia, hypertriglyceridemia)
- Drugs/Toxins, Trauma, Ischemia, Hypothermia
- Infections
- Autoimmune
- Genetic (familial, sporadic)
- Idiopathic: **12-25%**

Management AP

1. Diagnosis
2. Etiology
3. Severity prediction
4. Severity assesment
5. CT/MRI in the early fase
6. Treatment

1. Diagnosis AP

Definition of acute pancreatitis: '2 out of 3' of the following criteria:

1. Clinical (upper abdominal pain),
2. Laboratory (serum amylase or lipase >3x upper limit of normal)
3. Imaging (CT, MRI, ultrasonography) criteria.

2. Etiology of Acute Pancreatitis

Goal: potential treatment / prevention recurrent attack

On admission:

1. Personal (i.e. previous acute pancreatitis, known gallstone disease, alcohol intake, medication and drug intake, known hyperlipidemia, trauma, recent invasive procedures such as ERCP)
2. Family history of pancreatic disease,
3. Physical examination,
4. Laboratory serum tests (i.e. liver enzymes, calcium, triglycerides),
5. **Imaging (i.e. right upper quadrant ultrasonography).**

2. Etiology of Acute Pancreatitis

High probability of a biliary etiology (at least 1):

- 1) Gallstones or biliary sludge on imaging (any type),
- 2) Dilated CBD: > 8 mm in patients \leq 75 y or > 10 mm in patients > 75 y,
- 3) ALAT > 2x ULN

3. Severity prediction

3-dimension approach predict outcome of acute pancreatitis:

1. host risk factors (e.g. age, co-morbidity, body mass index),
2. clinical risk stratification (e.g. persistent SIRS)
3. monitoring response to initial therapy (e.g. persistent SIRS, blood urea nitrogen, creatinine).

3. Severity prediction (DPSG)

Within 24 h after presentation:

1. APACHE II score ≥ 8
2. modified Glasgow score ≥ 3
3. CRP > 150 mg per liter.

4. Cross-sectional Imaging

Indication for initial CT in acute pancreatitis:

1. Diagnostic uncertainty
2. Confirmation of severity based on clinical predictors of severe AP
3. Failure to respond to conservative treatment or in the setting of clinical deterioration.

Optimal timing: **At least 72-96 h after onset of symptoms.**

Acute Pancreatitis - Fluid Collections

Interstitial Pancreatitis

< 4 weeks

**Acute
Peripancreatic
Collection**

> 4 weeks

Pseudocyst

Necrotizing Pancreatitis

< 4 weeks

**Acute
Necrotic
Collection**

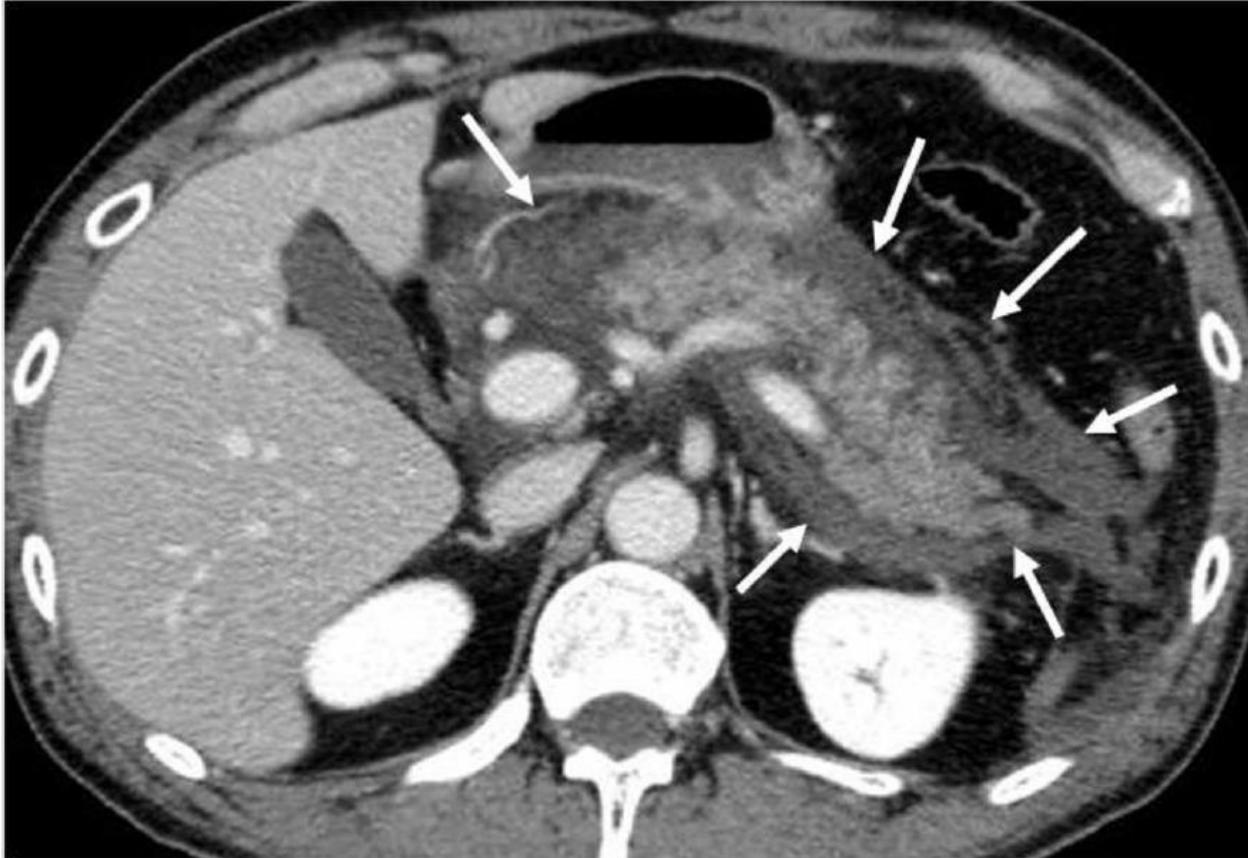
> 4 weeks

**Walled off
Necrosis**

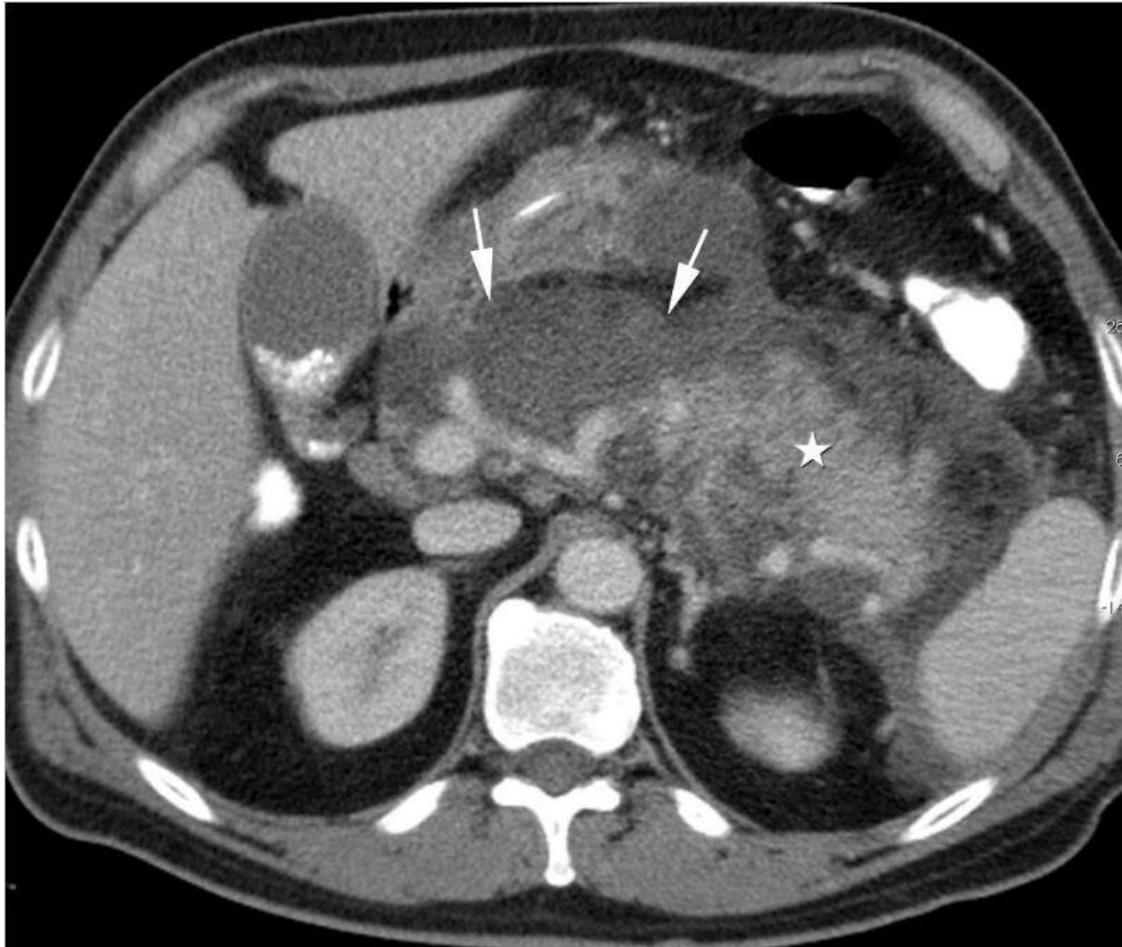
CT 3 days: Interstitial pancreatitis



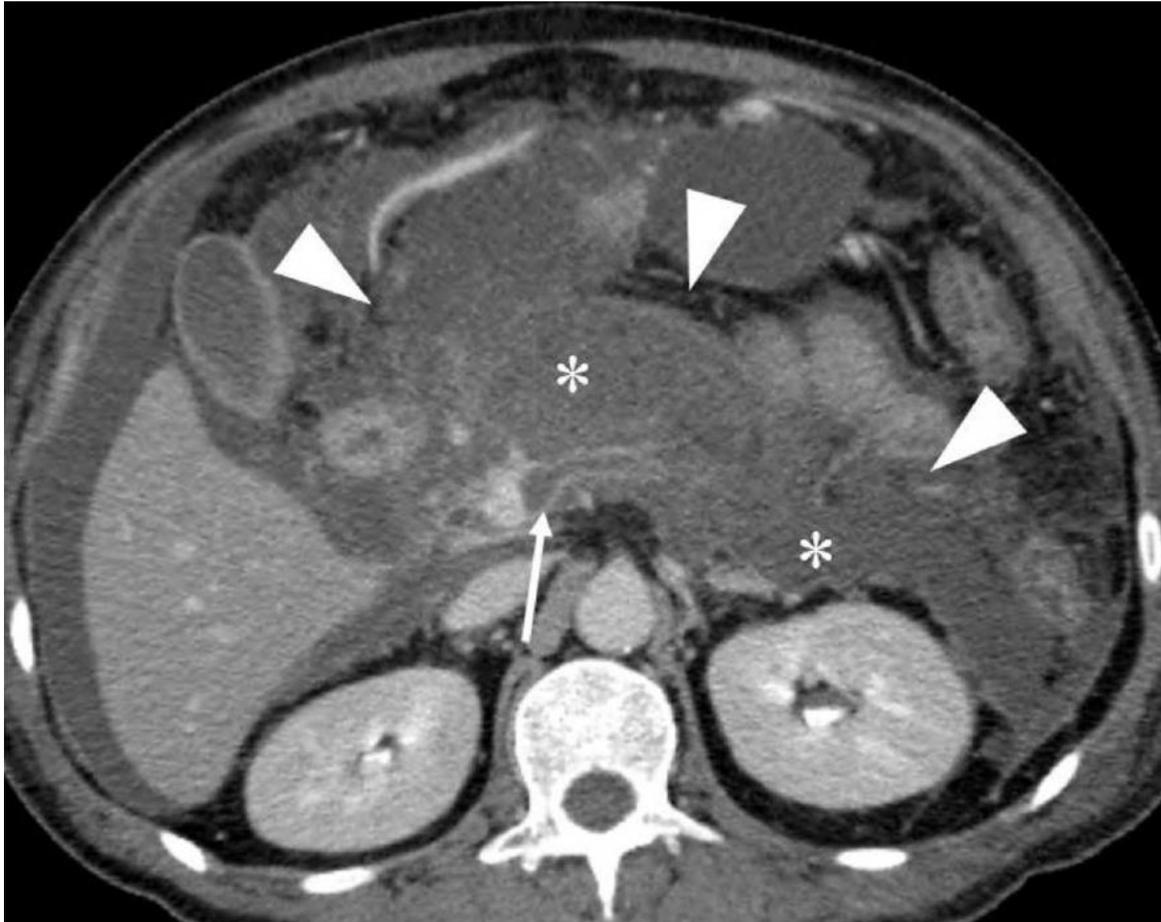
CT day 3: + fluid collections



CT 4 days: necrotic pancreatitis



CT 4 days: necrotic fluid collections



5. Severity assessment

2012: revised Atlanta criteria

- A. Mild AP
 - No organ failure
 - No local or systemic complications

- B. Moderately severe AP
 - OF resolves within 48h and/or:
 - Local/systemic complications without OF

- C. Severe AP
 - Persistent OF (>48h): single or multiple OF

5. Severity assessment

Cullen's sign: after 24-48h: Methemalbumin subcutaneously

- Increased mortality
- Also in: ectopic pregnancy, trauma, ruptured aortic aneurysm



5. Severity assessment

- Grey-Turner's & Fox's sign: 24-48h



6. Treatment AP

Treatment:

- A. Pain control
- B. Fluid resuscitation
- C. Role of Antibiotics
- D. Role of Nutrition
- E. Early ERCP in acute biliary pancreatitis
- F. Early drainage of infected fluid-collections
- G. Referral to expert center
- H. Future perspectives

A. Treatment: Pain control

Standard step-up approach:

1. PCM/NSAIDS
2. Opioids
3. Patient Controlled Analgesia (PCA)
4. Epiduraal

High on drugs: lessons from opiates in pancreatitis

Animal research:

1. more ileus/bacterial translocation,
2. Temporal delay in the reparative inflammatory response
3. Prevents pancreatic regeneration

Gut 2018;67:600–602

Pancreas 2017;46: 858–866)

Gut 2018;67:719–27.

B. Fluid resuscitation

- Ringer's lactate is recommended for initial fluid resuscitation
- Goal directed therapy with 5-10 ml/kg/h until **resuscitation goals**

Goals (1 or more):

1. Non-invasive clinical targets:

- heart rate < 120/min,
- mean arterial pressure between 65-85 mmHg, and
- urinary output > 0.5-1ml/kg/h,

2. Invasive clinical targets: stroke volume variation, intrathoracic blood volume

3. Biochemical targets of hematocrit 35-44%.

C. Role of AB

Use of prophylactic antibiotics is not recommended.

Technical review (n=10 RCT's):

1. AB: less infected necrosis: OR=0.56 (0.36-0.86)
2. Sub-group analysis (studies >2002): OR=0.81 (0.44-1.49)

D. Nutrition: 2018 AGA Guideline

1. Early vs delayed feeding: reduced risk
 - interventions for necrosis: OR, 2.47 (1.41-4.35)
2. Enteral vs parenteral nutrition: reduced risk:
 - infected peripancreatic necrosis (OR, 0.28; 95% CI, 0.15-0.51),
 - single organ failure (OR, 0.25; 95% CI, 0.10-0.62), and
 - multiple organ failure (OR, 0.41; 95% CI, 0.27-0.63).
3. Nasogastric vs nasoduodenal: ns mortality

D. Nutrition

Step-up approach:

1. Early (within 24 hours) oral feeding as tolerated
2. Inability to feed orally: enteral rather than parenteral nutrition: nasogastral or nasal enteral.
3. Parenteral nutrition can be administered as second-line therapy if nasojejunal tube feeding is not tolerated and nutritional support is required

E. Role of ERCP in biliary pancreatitis

- Not in predicted mild cases
- **Probably not** in predicted severe cases
- In cholangitis: indicated



Trials



Early biliary decompression versus conservative treatment in acute biliary pancreatitis (APEC trial): study protocol for a randomized controlled trial

F. Early drainage infected collections?

- Interventions should be delayed to 4 weeks before intervention
- Mechanical or infectious complications



pointer

G. Referral to expert center

Severe acute pancreatitis: that may need:

- interventional radiologic,
- endoscopic,
- surgical intervention.

A specialist center:

- a high volume center with up-to-date intensive care facilities
- access to interventional radiology, interventional endoscopy with EUS and ERCP assistance as well as surgical expertise in managing necrotizing pancreatitis.

Future perspectives

- Epidural
- Pentoxifyllin: Mayoclinics
- Fluid trials: SVI netwerk US
- Fish-oil: PWN: PLANCTON-trial
 - Early intravenous omega-3 fatty acids
 - Predicted severe acute pancreatitis (Besseling and van Goor)

Questions?

