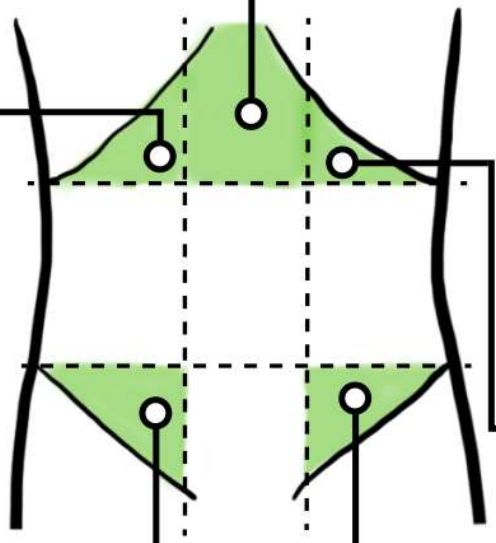
Framework for abdominal pain

ABDOMINAL PAIN

1) Life threatening

- Obstruction
- Perforation
- Vascular
- Ectopic pregnancy

2) Abdominal organs



Epi

- GERD/dyspepsia
- Gastritis
- Gastroparesis
- PUD

RUQ

Liver

- Inflammation
- Congestion
- Infiltration

Biliary

- Colic
- Cholecystitis
- Cholangitis

Pancreatitis

AAA

Constipation

LUQ

Spleen — **Colitis***

- Increased size
- Infarct
- Abscess

RLQ

Appendicitis

Colitis*

* • Infection
• IBD
• Ischemia
• Infiltration

LLQ

Diverticulitis — **Colitis***

3) Extra-abdominal organs

CV + Pulm

- PE
- Pneumonia
- MI, HF

Bladder

- Cystitis
- Urinary retention

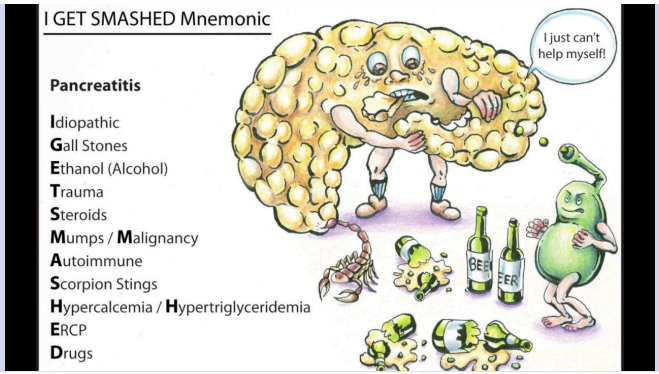
Pelvis

- Ovarian torsion/ cyst/cancer
- PID
- Endometriosis

Kidney

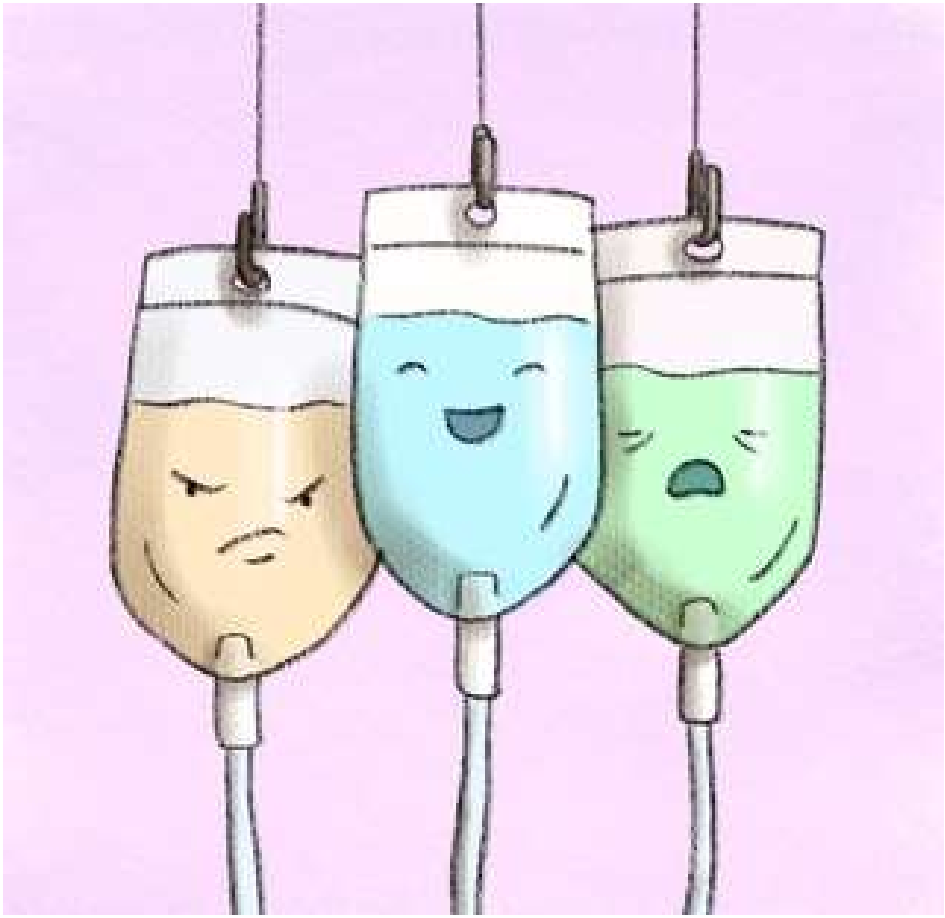
- Stone
- Pyelonephritis

Hypertriglyceridemia-induced Pancreatitis

	Acute Pancreatitis	Chronic Pancreatitis
Causes		• Alcohol use disorder • Recurrent acute pancreatitis • Chronic ductal obstruction • Genetic (eg: *CFTR*, SPINK mutations) • Systemic diseases (eg: SLE, hyperparathyroidism, hypertriglyceridemia) • Idiopathic • Autoimmune
Lipase	Always elevated (4-8 hours of onset) & 8-14 days to normalize	Tends to be normal
Diagnosis	Needs 2/3 • Acute, severe epigastric abdominal pain • Lipase >3x ULN • Imaging findings consistent with acute pancreatitis	• Classic triad: pancreatic calcifications, steatorrhea (best measured by fecal elastase), DM • Essential to r/o pancreatic cancer
Tx	1) IVF 2) Pain control 3) PO Intake within 48 hours 4) Avoid antibiotics	• Alcohol and smoking cessation • Pancreatic enzyme supplementation, ADEK supplementation • Pain control • Specialized: celiac nerve blocks, endoscopic therapy, and surgical resection

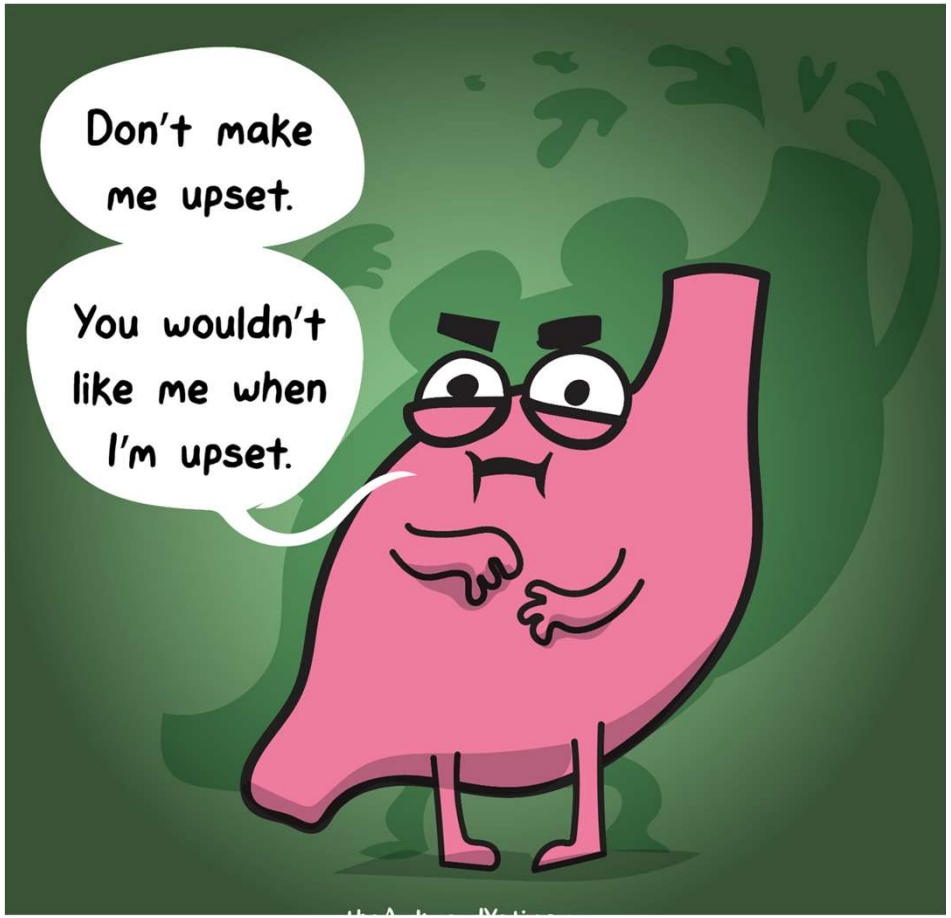
Fluid Resuscitation in Acute Pancreatitis

- Crystalloid solution at 5-10 cc/kg/hr
  - 5*70kg = 350cc/hr
  - Consider other cardiac and renal comorbidities
- Goal directed therapy
  - Improvement in vitals (e.g. HR and BP)
  - Reduction in Hematocrit by 35-44%
  - Good UOP (>0.5-1 cc/kg/hr)
  - Reduction in BUN



Nutrition

- Enteral nutrition >>> parenteral nutrition
- Maintain intestinal barrier, prevent bacterial translocation from the gut
- Mild pancreatitis
  - Initiate PO intake w/in 48hrs (based on symptoms, NOT lipase reduction)
  - Can go straight to a low residue, low fat, soft diet
- Moderate/Severe pancreatitis
  - If unable to tolerate POs, consider NJ or NG by day 5.



Treatment of hyperTG-induced pancreatitis

CC: Epigastric pain

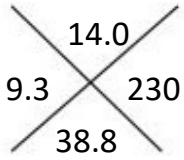
HPI:
35 y/o M.
Epigastric pain that started today.
Radiates to his LUQ.
Associated with decreased PO intake and NBNB emesis x3.
Endorsed hx of pancreatitis.

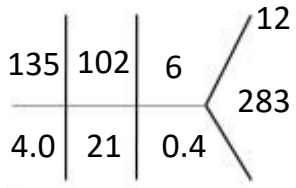
Rest of ROS is negative.

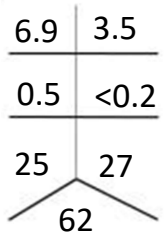
Physical Exam:
Tmax 37.1C, BP 151/99, HR 104, RR 18, SpO2 98% on RA
General: in NAD, lying flat in bed
HEENT: PERRL, dry mucous membranes
CV: tachycardic, regular rhythm, no M/R/G
Pulm: CTAB, no wheezes, no rales, no rhonchi
GI: obese, nondistended, soft, mildly tender to palpation at epigastric
MSK: no edema, warm extremities with palpable distal pulses
Neuro: AOx3, answering questions appropriately, moving all extremities against gravity, no gross focal deficits

PMH: HLD, IDDM2, Obesity
SH: Denied current or past use of ETOH, tobacco, or drugs.
FH: DM in grandparents
Allergies: NKDA
Meds:
- Atorvastatin 80mg daily
- Empagliflozin 10mg daily
- Fenofibrate 160mg daily
- Insulin Novolog 70-30 50 units qAM and 40 units qPM

Labs:







Lipase: 87

Hgb A1C: 11.1

Lipid panel
- Cholesterol: 349
- **Triglyceride: 6210**
- HDL: 20
- LDL: 47

Problem Representation:
Young man with HLD, IDDM2, Obesity, and hx of pancreatitis, who presents with acute epigastric pain that radiates to LUQ, decreased PO intake, and NBNB emesis.

Diagnosis: Hypertriglyceridemia-induced acute pancreatitis

Learning points:
1. Framework for abdominal pain
   - R/o emergencies: obstruction, perforation, vascular, ectopic pregnancy
   - Evaluate by quadrant
   - Evaluate extra-abdominal organs
2. **Early enteral refeeding (w/in 48hrs)** is encouraged.
3. Treat hypertriglyceridemia-induced acute pancreatitis with **insulin**.