ABDOMINAL EMERGENCIES IN THE ELDERLY

ECI Rural Workshops
2012
THE ELDERLY - AGE

- “Young old” 65-75
- “Middle old” 75-85
- “Old old” >85
THE ELDERLY
DEMOGRAPHIC

- 13% of Australian population are >65yrs
- Projected 25% by 2042
- “Oldest old” is the fastest growing subset
- “Physiological age” may be different to “Chronological age”
AUSTRALIAN POPULATION GROWTH
EMERGENCY MEDICAL CARE
ELDERLY

- >15% of all ED VISITS
- 39% of Ambulance arrivals
- 46% admission rate
  - 47% of all ICU admissions
EMERGENCY MEDICAL CARE
ELDERLY

- Undergo 50% more lab and radiology testing
- Much higher bounceback rate
- Much higher misdiagnosis rate
- Worse outcomes with delays in diagnosis
THE ELDERLY

PHYSIOLOGICAL CHANGES
IMMUNE SYSTEM

- Consider the elderly to be immunosuppressed
  - Decreased cell mediated immunity
  - Decreased antibody titres
  - Decreased barrier protection from skin

- Take longer to "demonstrate" infection
  - Fever
  - Elevated WBC
  - May develop hypothermia
BASAL BODY TEMPERATURE

- Basal body temperature decreases with age so that a fever of any level becomes much more meaningful.
- Decreased response to temperature changes.
- Don’t sweat as early.
- Don’t sense heat as early.
- Don’t get thirsty as early.
**RENAL FUNCTION**

- Decreased renal cell mass, so GFR decreases with age (chronic disease, diabetes, hypertension)
- Decreased drug clearance
  - Greater risk of drug toxicities
- Decreased production of creatinine due to smaller muscle mass
Decreased response to both endogenous and exogenous catecholamines
- Both inotropic and chronotropic
- Enhanced if on beta blockers
CARDIOVASCULAR SYSTEM

- 1% decrease in CO per year >35yo

- Higher risk of CHF with medical stressors
  - Severe sepsis
  - Pneumonia
SHOCK IN THE ELDERLY

- Develops earlier and more easily
  - Occult shock is common
  - Needs aggressive treatment
  - Have a low threshold for early lactate levels and following Lactate trend
GASTROINTESTINAL TRACT

- Slower GI motility including decreased stomach emptying time
- Increased diverticuli in colon
- Decreased fluid intake and mobility – increase in constipation
GASTROINTESTINAL TRACT

- Decreased gastric mucous and bicarbonate production
  - Increased risk of GIT haemorrhage
  - Be wary of NSAID, Aspirin & Warfarin use!
  - 30-35% of asymptomatic elderly have ulcer disease
  - 50% present with perforation or haemorrhage
  - Steroids predispose
GASTROINTESTINAL TRACT

- Decreased GI system blood flow
  - Increased risk of mesenteric ischaemia
  - Atheroma
  - Emboli from AF
  - “Low flow” states
Dementia/decreased cognitive function lead to
- Decreased sensation of pain
- Downplaying of symptoms
- Denial of symptoms
- Decreased and delayed pain perception at nocioceptor cellular level
“Those who are used to bearing an accustomed pain, even if they be weak and old, bear it more easily than the young and strong who are unaccustomed”
POLYPHARMACY

- Average elderly
  - 4-5 prescription drugs
  - 2 OTC medications every day
- Drugs can mask symptoms and alter vital signs
  - NSAIDs
  - Steroids
  - Digoxin (causes splanchnic vasoconstriction)
- Warfarin
VITAL SIGNS IN THE ELDERLY
Lack of fever does not rule out possibility of dangerous infection.

The elderly pt is 3-4X more likely to develop HYPO thermia in response to sepsis.

If a fever is mounted, it could be delayed by hours or days.
HEART RATE

- May or may not mount tachycardia
  - Beta blockers
  - Calcium Channel blockers
  - Digoxin
BLOOD PRESSURE

- May already be low due to antihypertensive meds

- Hyper/hypotension can be relative compared to normal BP e.g.
  
  \[180/100 \rightarrow 120/60\]

  “RELATIVE SHOCK”
RESPIRATORY RATE

- Very Useful
- First abn Vital Sign in sepsis is tachypnoea
- IMPORTANT TO COUNT RESPIRATIONS
ELDERLY ABDO PAIN

THE FACTS

- 10% will die, even higher than the elderly patient presenting with chest pain
- Can present in any way possible
- 55% will have another diagnosis on discharge
- Misdiagnosis increases mortality 2X
ACUTE APPENDICITIS

- 8% of all appendicectomies
- Accounts for 5-6% of all acute abdominal emergencies in the elderly

- High rate of delayed or misdiagnosed
  - 25% sent home at first presentation
  - Elderly 50% of all mortality
ELDERLY ACUTE APPENDICITIS

- Nausea, vomiting, anorexia <50%
- Pain Migration <50%
- Afebrile 20-50%
- Normal WBC 20-45%
- U/A may show RBCs +/- WBCs (leading to misdiagnosis as UTI, cystitis, renal colic)
- >50% perf rate @ time of diagnosis
- Delay in presentation (3-7/7 common)
RUPTURED AAA

- Even when rapid diagnosis made, mortality >70%
- Rate of misdiagnosis as high as 30-40%
- Only 5% of patients with rupture have known AAA on presentation
RUPTURED AAA
SYMPTOMS

- Abdo +/- Back pain
- Hypotension
- Palpable pulsating tender abdominal aorta
RUPTURED ABDOMINAL AORTIC ANEURYSM

- Often misdiagnosed
- Severe “tearing” abdominal pain radiating through to back
- Radiates to: flanks, thighs, testes
RUPTURED AAA SYMPTOMS

- Abdo pain absent in 20-30%
- Back pain absent in 50%
- Hypotension absent in 65%
- Tachycardia absent in 50%
- Palpable aorta absent in 30%
RUPTURED AAA PRESENTATIONS

- Presents as syncope in 18%

- May simulate renal colic
  - Most common misdiagnosis
  - Sharp sudden pain in flank often radiates to groin
  - Can have microscopic haematuria
“There is no disease more conducive to clinical humility than aneurysm of the aorta”
MESENTERIC ISCHAEMIA

- Risk Factors
  - Atrial Fibrillation
  - Dig and other drugs can slow splanchnic blood flow
  - Recent MI
  - Low cardiac output CHF, cardiomyopathy
  - Hypercoagulable states
THROMBOSIS OF
MESENTERIC ARTERY

THROMBOSIS OF
MESENTERIC VEIN
MESENTERIC ISCHAEMIA

- Often misdiagnosed as Gastroenteritis
  - Nausea and Anorexia 80%
  - Vomiting 60%
  - Diarrhoea 50%

- Blood products in Stool (gross or occult) in <50%
THINK OF MESENTERIC ISCHAEMIA!

- Sudden onset Abdominal Pain (also AAA)
- Lower GI Bleed + Abdo Pain
- Atrial Fibrillation + Abdo Pain
- Severe CHF + Abdo Pain
- Patients on Digoxin + Abdo Pain
- Pain out of proportion to abdominal findings
- Recent history of pain after eating – “mesenteric angina”
MESENTERIC ISCHAEMIA TESTS

- Leucocytosis
- Lactic Acidosis
- CT high resolution
- Early angiography – still Gold Standard
- High mortality which improves with early diagnosis
ACUTE CHOLECYSTITIS

- Most common cause of surgical abdominal disease in the elderly
- 10-15% mortality in elderly
- Gallbladder is more likely to perforate due to thin calcified wall
ACUTE CHOLECYSTITIS SYMPTOMS

- Nausea/vomiting absent in 50-60%
- Fever absent in 56%
- WBC < 10,000 in 40%
- 13% Afebrile with all normal labs
- 16% no RUQ or epigastric pain
- 5% no abdo pain at all! (these can have altered mental status)
TAKE HOME MESSAGES

- The elderly are not just “old” adults
  - Different diseases
  - Different presentations
  - Different Mindset

- Physiological changes occur with ageing

- Pharmacokinetics changes due to
  - Polypharmacy
  - Increased risk of adverse drug effects
TAKE HOME MESSAGES II

- Some lab parameters change with ageing
- Acute functional decline presentations can mask acute illness

- Atypical presentations occur for common diseases
ACKNOWLEDGEMENTS

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  - Vol 29, various articles
- Parker. Acad. Em Med 1997
ASSESSMENT OF THE ABDOMEN

- HISTORY
- VITAL SIGNS
- PHYSICAL ASSESSMENT
- SOME COMMON CONDITIONS
ABDOMINALLY-FOCUSSED HISTORY

- Pain level and nature of onset
- Recent diet including alcohol
- Upper GIT symptoms
  - Appetite, weight loss, nausea, dry reaching, vomiting, haematemesis
- Lower GIT symptoms
  - diarrhoea, abdominal cramps, constipation, blood in stools, stool colour, amount, consistency
ABDOMINALLY-FOCUSSED HISTORY

- Longstanding History of Bowel Problems
  e.g. Crohn’s disease, Ulcerative colitis, Haemorrhoids, Diverticular disease

- Urinary Symptoms
  Blood, pain, frequency

- Menstrual history in the female
  Last period, contraceptive use etc.
OTHER IMPORTANT THINGS IN THE HISTORY

- Medications
- Mechanism of Injury if trauma
- Allergies
ABDOMINAL PAIN ASSESSMENT

- **Airway**: Assess Patency
- **Breathing**: Respiratory rate and effort, Oxygen saturations, Listen to chest
- **Disability**: Note level of consciousness
ABDOMINAL PAIN
CIRCULATION

- **Assessment**
  - Skin Temperature
  - Pulse rate/rhythm
  - Capillary refill
  - Blood pressure
  - Cardiac Monitor

- **Interventions**
  - IV cannulation
  - Pathology tests
    - FBC/UEC
    - ?LFT’s, Amylase, Gp&Hold
  - IV Normal Saline if shock
  - Monitor vital signs
# VITAL SIGNS

**ESSENTIAL!!**

- **Temperature**: $<36.0 \text{ } ^\circ\text{C}$, $>37.2 \text{ } ^\circ\text{C}$
- **Pulse**: $<60$, $>120$
- **RR**: $<10$, $>24$
- **Systolic BP**: $<90$, $>180$
- **Diastolic BP**: $>110$
- **Urinalysis and colour**
ASSESSMENT
STATE OF HYDRATION

- Signs of Dehydration
  - Decreased urine output
  - Dry mouth
  - Decreased skin turgor
  - Tachypnoea
  - Empty fontanelle in children
  - Postural Tachycardia and Hypotension
  - Supine Tachycardia and Hypotension
ASSESSMENT

LEVEL OF BLOOD LOSS

- < 20% Volume
  - Cool, pale moist skin
  - Collapsed neck veins
  - Concentrated urine
  - Postural hypotension and tachycardia

- 20- 40% Volume
  - Thirst
  - Supine hypotension and tachycardia

- > 40% Volume
  - Agitation, confusion, obtundation
  - Tachypnoea
ABDOMINAL PAIN

HYDRATION INTERVENTIONS

- Indwelling catheter
  Hourly urine measures

- Fluid balance
VISUAL ASSESSMENT

- General appearance
  - Jaundice
- Position
  - Lying still – peritonitis
  - Rolling around – colic
- Abdomen
  - Flat or distended
  - Pulsating
- Scars, Striae
PHYSICAL ASSESSMENT

- AUSCULTATION
  - Many bowel sounds
  - No bowel sounds
  - Bruits

- PERCUSSION
ABDOMINAL ASSESSMENT

MEASURE AND TEST

- Pain Score
  - If Pain score 4 – 10 give IV or IM Morphine

- Fingerprick BSL

- Urine Testing
  - U/A, HCG, collect MSU
ABDOMINAL PAIN
SPECIFIC TREATMENT

- Nil by Mouth
  - Bowel rest
  - Preparation for theatre

- Nasogastric Tube
  - Free drainage/amount of drainage
  - Low suction

- Intravenous Fluids
  - Hydration
  - Bowel rest

- Nausea and Vomiting
  - IM Prochlorperazine
ABDOMINAL PAIN

3 TYPES:

- VISCERAL
- PARIETAL
- REFERRED
**VISCERAL PAIN**

- Mediated by autonomic nerve fibres
- Originates in abdominal organs
- Character:
  - Diffuse
  - Poorly localized
  - Ill-defined
  - Intermittent
- Typically midline
PERIUMBILICAL PAIN

- Acute appendicitis
- Acute small gut obstruction
- Simple intestinal colic
- Acute pancreatitis
RIGHT I LIAC FOSSA PAIN

- Appendicitis
- Leaking duodenal ulcer
- Pyelonephritis
- Crohn’s disease
- Mesenteric adenitis
- Cholecystitis (low gallbladder)
RIGHT HYPOCHONDRIAL PAIN

- Acute cholecystitis
- Leaking duodenal ulcer
- Appendicitis with high appendix
- Pyelonephritis
- Pleural irritation
VIScERAL PAI N

- “Cramping, burning, aching, dull, colicky, gasy”
- Accompanied by:
  - Nausea
  - Vomiting
  - Diaphoresis
  - Tachycardia
  - Pallor
  - Restlessness

- Causes:
  - Appendicitis, Cholecystitis, Intestinal Obstruction
PARIETAL PAIN

- Develops after visceral pain
- Originates in parietal peritoneum
- Cause: Inflammation
  steady
  aching
  more severe than visceral pain
  more severe
PARIETAL PAIN

- Aggravated by changes in peritoneal tension
  - palpation
  - movement
  - coughing
  - sneezing
- More localized to site of underlying disease
REFERRED PAIN

- Perceived at site distant from primary affected organs
- Distant site innervated at spinal level of affected organs
- Travels from initial site of pain
MURPHY’S SIGN
GASTROENTERITIS

- Mild to severe cramping and pain
- Nausea, vomiting, dry reaching diarrhoea
- **No** involuntary guarding
- **No** localized tenderness
- **No** peritonism

If any of the above, it is probably NOT gastro
INTESTINAL PERFORATION

- Sudden, severe, agonizing mid to lower abdominal pain
- Nausea and vomiting are common
- Abdomen is rigid and tender
- Commonly history of diverticular disease
REFERRED PAIN

- Perceived at site distant from primary affected organs
- Distant site innervated at spinal level of affected organs
- Travels from initial site of pain
APPENDICITIS

- Common
- Incidence peaks in teens
- Pain
  - colicky around navel (visceral)
  - moves to RLQ (parietal)
- Anorexia, nausea, vomiting
- Fever (mild)
- Altered bowel habit
APPENDICITIS

- Localised tenderness
- Investigations
  - Ultrasound
  - CT scan
- Complications
  - Perforation
  - Abscess
BOWEL OBSTRUCTION
CAUSES

- MECHANICAL
  - Adhesions
  - Tumours
  - Hernia
  - Volvulus

- Crohn’s
- Diverticular disease
- Faecal Impaction
BOWEL OBSTRUCTION
CAUSES

- **PARALYTIC ILEUS**
  - Intraabdominal: peritonitis, pancreatitis, postoperative
  - Extraabdominal: Postoperative, pneumonia, spinal trauma
BOWEL OBSTRUCTION
SIGNS AND SYMPTOMS

- Abdominal pain
  - Distension
  - Nausea and Vomiting
  - Hyper/hypoactive bowel sounds
  - Constipation

- Fever/Chills

- Deteriorating condition
  - Think of bowel ischaemia/necrosis
BOWEL OBSTRUCTION
PHYSICAL EXAMINATION

- Observation
  - Writhing or lying quietly
  - Abdominal girth
  - Distension

- Auscultation
  - Bowel sounds

- Percussion
  - Tympanitic note

- Palpation
  - Localised tenderness
BOWEL OBSTRUCTION
MANAGEMENT

- Relieve distension
  - Decompression by NG Suction
    - Relieves pain and distress
    - Prevents further nausea and vomiting
  - Enemas
  - Nil by mouth
BOWEL OBSTRUCTION MANAGEMENT

- Restore fluid and electrolyte balance
  - IV Fluids
  - Potassium
  - Sodium
  - Chloride
BOWEL OBSTRUCTION MANAGEMENT

- Ongoing care
  - Abdominal girth
  - Record intake and output
  - Electrolytes and enzymes monitored

- Attention to Pain Management

- Explain aspects of care to Patient
UPPER GASTROINTESTINAL BLEEDING

- CAUSES
  
  Peptic Ulcers
  Gastritis
  Oesophageal Varices
  Oesophagitis
  Mallory-Weiss Tear
Important Clinical Signs

- Pulse > 100/min  shock
- BP  < 100 systolic
- Meleana stools purple to black
- Vomitus coffee grounds to bright red
- Haematochezia bright red rectal bleed
- Abdominal pain
Important History
- Recent vomiting
- Alcohol Abuse
- NSAID use
- Steroids/anticoagulants

Investigation
- endoscopy
UPPER GASTROINTESTINAL BLEEDING MANAGEMENT

- Restore Volume
  - IV fluids
  - Blood
- H2 Antagonists
- Antacids
- Varices
  - Vasopressin
  - Sclerotherapy
- Diet
- High Mortality (10%)
BILIARY COLIC

- Post ingestion of food
- Begins abruptly
- Subsides gradually (up to 6 hrs)
- Epigastric, may radiate to left or right
- Dry reaching without actual vomiting
- Usually prior attacks
PERFORATED PEPTIC ULCER

- **Sudden** severe abdominal pain
- Shoulder pain
- Generalized peritonitis
- Antiinflammatories
- Fluid may track down paracolic gutters
- X-ray may show gas under diaphragm
GAS UNDER THE DIAPHRAGM
URETERIC COLIC

- Sudden, severe flank pain followed by some degree of haematuria
- History of stones
- May radiate to testis and tip of penis
PYELONEPHRITIS

- Dysuria
- Frequency
- Fever
- Sometimes rigors
- Pain over costovertebral angle or lateral abdomen
- Nausea, vomiting, malaise
- Bacteria and leukocytes on urine microscopy
ECTOPIC PREGNANCY WITH RUPTURE

- Sudden severe pelvic pain spreading upwards
- Referred to shoulder if free blood
- Pain may be vague or intermittent
- Symptoms of pregnancy
ECTOPIC PREGNANCY WITH RUPTURE

- Pain radiates to low back and thighs
- Similar to menstrual pain (worse)
- Pallor ++
- **Very** tender P.V.
- Bluish cervix
RUPTURED ABDOMINAL AORTIC ANEURYSM
RUPTURED ABDOMINAL AORTIC ANEURYSM

- Signs of bleeding present
- May be a palpable midline pulsating mass
- Lateral abdominal x-ray will show aneurysm in 90% of cases