Emergency in primary care

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Meeting emergency

- App. 8 „real” emergency/year; 22 cardiac arrests 10 deaths in 1650 Swiss practices/5years
- Office emergency
  - Misinterpret the urgency of their condition
  - Purposefully avoid the emergency department
  - Parents unaware of the severity of their child's illness

Table 2. Adjusted Mean Satisfaction Score for Care for Most Recent Urgent Health Problem Among 1,227 Patients Who Used Different Services

Site of Service*	Adjusted Score† Mean (SE)	95% CI
Family physician†	6.1 (0.14)	5.8-6.4
After-hours clinic§	5.6 (0.20)	5.2-6.0
Emergency department¶	5.3 (0.08)	5.2-5.5
Telephone health advisory service	4.8 (0.32)	4.2-5.5
Walk-in clinic	4.7 (0.21)	4.3-5.1
More than 1 service	4.7 (0.17)	4.4-5.0

Ann Fam Med 2007;5:419-424.

ED attendances rising

- Inappropriate: 20-40%, pediatric visits: 58-82%
- Consequences
  - overcrowding, long waiting times
  - increased number of hospital admissions
  - work overload for ED stuff
  - costs
- Causes
  - Perceived severity of condition
  - Patient variables: young, female, low income
  - Psychosocial factors: family conflicts, ill relative, financial problems, substance abuse…

ED attendances rising

- Causes
  - Frequent users have psychiatric co-morbidity
    - 93%
    - patients don't present with psychosocial complaints
    - doctors don't recognize it
    - not identified, not followed up by psychiatrists
  - Efficiency of ED
    - psychiatric diagnosis 9%

Mehl-Madrona Can J Rural Med 2008; 13 (1)

ED attendances rising

- Problems with primary care
  - Incomplete awareness of out-of-hours GP service
  - Patients lacking a usual source of care, regular physician
  - Difficulties in accessing primary care
  - *Advice by PCP to utilize ED*
  - *Communication problems (unhelpful staff at PCP)*
  - *Dissatisfaction with PCP*

ED attendances rising

- Solutions
  - Patient education – what conditions can be cared for in PCP office
  - More availability of office appointments
  - Good communication, patient-doctor relationship
  - Quick recovery after ED visit – strongest correlation: having a PCP

Tsai et al. Qual Life Res. 2009 Mar;18(2):191-9. Epub 2009 Jan 4.

Meeting emergency

- Small villages
- Urgent care centers
- During surgery hours
- During outdoor visits
- As a neighbor, passer-by, etc.

- Relatively common
- Important to recognize, not always evident
- Prehospital care can be crucial

Difficulties, obstacles

- Lack of equipment (defibrillator, infusion pump, endotracheal intubation)
- Lack of staff
  - Alone
  - Practice nurse
  - Colleague
- Lack of experience
  - Small number of emergencies
- Proximity of hospital

Solutions

- Proper planning
- Acquisition of emergency supplies
- In experienced hands – regular training – maintaining skills
- Create written emergency protocol
- Practice for emergencies

Giving advice

- Find out if you or your family are at risk
- Talk to your doctor about what you should do if an emergency happens
- Know when your doctor's office is open and how to contact your doctor when the office is closed
- Find out which emergency room or urgent care center you should go to in an emergency
- Know how to call an ambulance, help
- Keep a list of the medicines you take and your medical problems
- Learn basic first aid skills

Most common emergencies

- Cardiac emergencies
- Asthma exacerbation
- Psychiatric
- Impaired consciousness
- Hypoglycaemia
- Anaphylaxis
- Seizure
- Shock
- Poisoning / Drug overdose

Johnston et al. Med J Aust 2001;175:99-103.

Unconscious Patient

- Loss of awareness, patient not responding
- Corneal reflex missing
- Breathing and circulation normal

- Check airway, breathing, and pulse
  If necessary, rescue breathing and CPR
- If there is no spinal injury → recovery position
- Spinal injury is possible → move the patient only when necessary (vomiting, not breathing)
- Prevent hypothermia

Not to do

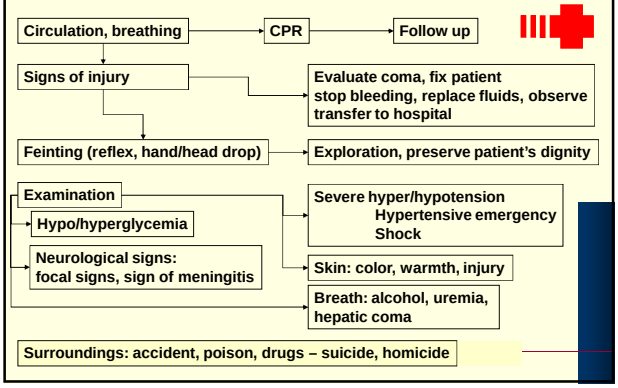
- Hesitate to start CPR, if necessary
- Try to heal immediately

- Place a pillow under the head
- Give water, medications (hypoglycemia)
- Slap the face or splash water onto the face
- Leave alone
- Raise the patient after collapse

Reasons

- Injuries of the head, neck
- Metabolic: hypo/hyperglycemia, hepatic disease, etc.
- Stroke, cerebral tumors, infections
- Epilepsy, psychiatric (conversion, catatonia, hyperventilating)
- Alcohol/substance abuse, poisons
- Brief unconsciousness (fainting): dehydration, low blood sugar, or temporary low blood pressure

Unconscious Patient



Hypovolemic shock

- Fluid loss → circulating volume ↓ → hypoperfusion → multiple organ failure
- Blood loss
  - External bleeding
  - GI bleeding (varices, ulcers, Mallory-Weiss tears)
  - Blood loss into the thoracic and abdominal cavities (solid organ injury, rupture of aortic aneurysm), into the thigh
  - Gynecologic cause (ectopic pregnancy, abruption of the placenta)
- Refractory gastroenteritis
- Extensive burns

Hypovolemic shock

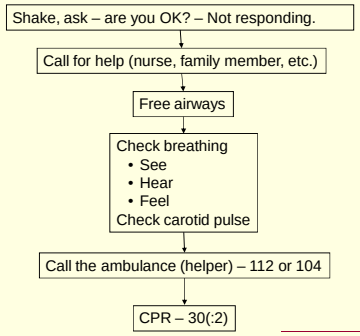
- Signs (moderate → severe)
  - Tachycardia
  - Delay in capillary refill
  - Tachypnea
  - Decrease in pulse pressure
  - Cool clammy skin
  - Anxiety
  - Decreased systolic BP
  - Oliguria
  - Significant changes in mental status

Prehospital care

- Airways, ventilation, circulation
- Direct pressure to external bleeding vessels
- Prevent further injury
  - Cervical spine immobilized
  - Splinting of fractures
  - Move patient to stretcher

- Position (shock position, gravid patient – left side)
- Keep the patient warm, relieve pain
- Start iv. lines (1-2l lactated Ringer, saline), give oxygen
- Rapid transfer to hospital

Basic life support (BLS)



Anaphylaxis

- Severe allergic reaction with prominent dermal and systemic signs
- Causes
  - Antibiotics (especially penicillins)
  - Other medications (NSAIDs, etc.)
  - IV contrast materials
  - Insect stings
  - Certain foods (peanuts)
  - Idiopathic

Anaphylaxis

- Signs
  - Skin, mucous membranes
    - Urticaria
    - Erythema, pruritus
    - Angioedema
  - Airways
    - Nasal congestion, sneezing
    - Cough, hoarseness, tightness in the throat
    - Dyspnea (bronchospasm or upper airway edema)
    - Tachypnea
  - Anxiety, depressed level of consciousness or agitation

Anaphylaxis

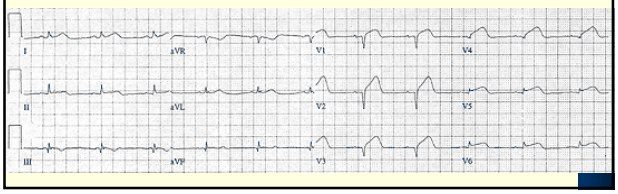
- Signs
  - Cardiovascular
    - Hypotonia
    - Chest pain
    - Tachycardia
  - Gastrointestinal
    - Abdominal pain
    - Nausea, vomiting
    - Diarrhea
  - Eye
    - Conjunctival injection
    - Tearing, itching

Anaphylaxis - treatment

- Mild symptoms → shock
- Determine respiratory and cardiovascular status
- Skin manifestations may be missing, history of exposure unavailable
  - Airway – bag/valve/mask, cricothyrotomy, intubation
  - Iv. access (keep vein open → 1L), oxygen
  - Inhaled beta-agonists, theophyllin (wheezing)
  - Mild reactions → antihistamine (calcium)
  - Epinephrine (systemic manifestations)
  - Corticosteroids (delayed effect)

Clinical case

- 74 year-old woman, history: diabetes, hypertension, hyperlipidemia
- Call: Strong chest pain on the left side, weakness, dyspnea
- Physical: 120/70-75, rales, epigastrial tenderness, no arrhythmia



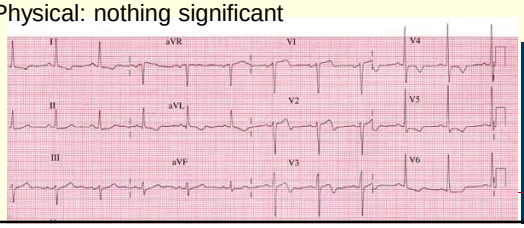
Clinical case

- Acute extensive anterior STEMI, with heart failure
- Therapy: aspirin po. 500 mg, clopidogrel 600 mg, nitroglycerine spray, iv. access, furosemide 60 mg, morphine titrated (5 mg)
- Ambulance → PCI center

- NB: high risk, typical symptoms, typical ECG

Clinical case 2.

- 71 year-old woman, smoker, history: hypertension, hyperlipidemia, hypothyroidism – compliance problems; chemotherapy – lung cancer
- Nausea during the night, moderate chest pain
- Physical: nothing significant



Clinical case 2.

- Unstable angina
- Treatment:
  - aspirin 500 mg po.
  - clopidogrel 300 mg po.
  - metoprolol 25 mg po.
  - iv. access
- Ambulance, ICU
- Cause: anemia following chemotherapy

Cardiovascular emergencies

Acute Coronary Syndrome

myocardial ischemia, due to an imbalance between supply and demand of myocardial oxygen

- Risk factors (hypertension, diabetes, smoking, cholesterol, family history, age, sex, prior CVD)
- History (chest pressure or heaviness, neck, jaw, ear, arm, or epigastric discomfort, shortness of breath, weakness, nausea – DM!, anxiety, diaphoresis)
- Physical – check for pulmonary edema, arrhythmia, (new) murmurs, hyper- hypotension

Cardiovascular emergencies

Acute Coronary Syndrome

ECG

- (Transient) ST segment elevations
- Dynamic T-wave changes, either inversions, normalizations
- ST depression (junctional, downsloping, or horizontal)
- Normal or unchanged ECG does not exclude ACS
- STEMI (3 hours – 60min., 12 hours – 90min.) – PCI
- NSTEMI, unstable angina – cardiology, intensive care unit

Cardiovascular emergencies

Prehospital care

- Aspirin (500 mg), clopidogrel 300-600 mg, [heparin – 5000U bolus, LMWH]
- Nitroglycerin (sublingual, transdermal, infusion)
- Oxygen
- Morphine 5-10 mg iv. – titrate to pain
- Obtain IV access
- Perform pulsoximetry
- Metoprolol (3-5 mg iv.), captopril 12,5-25 mg po.
- Lidocain (80-160 mg)

Clinical case

- 30 year-old man, history: treated hypertension stopped taking his medication, BMI:40,4 kg/m^2
- Current history: pulsating headache, high blood pressure
- Physical: 205/118 – 80, otherwise normal, ECG normal
- Treatment: captopril 25mg orally, repeated; metamizole 1000 mg orally
- Restart past medications (lisinopril, amlodipine, bisoprolol)

Clinical case 2

- 63 year-old man with known hypertension
- Stopped his medication months ago
- History: claims to be well
- Physical: nothing notable, but 195/110 – 85

- Acute treatment: none
- Restart previous medications (metoprolol retard, felodipine)

Clinical case 3

- 78 year-old woman
- Stumbled 2 hours ago
- Lies on the floor, severe pain in her left hip
- Physical: RR: 195/110, unable to elevate affected leg, no other injuries, extremity slightly shortened, abducted, and externally rotated
- Treatment: iv. access, tramadol 50 mg iv., transfer to hospital on vacuum mattress
- Control BP after tramadol: 160/90 Hgmm

Hypertensive emergencies

- Hypertensive emergency (crisis)
  severe hypertension with acute impairment of an organ system (CNS, CV, renal)
- Hypertensive urgency
  BP is a potential risk, with no acute end-organ damage
- Main risk factor for a crisis/urgency
  - Insufficient blood pressure control

Family Practice; Aug 2004; 21, 4;

Hypertensive emergencies

- History
  - Medications (hypertensive medications and compliance, drugs)
  - Other medical problems (hypertension, thyroid disease, Cushing disease, renal disease)
- Complications
  - CNS: headaches, blurred vision, nausea, weakness, confusion, focal neurologic findings, dizziness, ataxia
  - CV: heart failure, angina, dissecting aneurysm
  - Renal manifestations: hematuria, oliguria

Hypertensive emergencies

Causes

- ineffective medications (lack of regular BP check)
- bad compliance
- anxiety, panic attack
- pain
- other (renal failure, eclampsia, head injuries, pheochromocytoma, drugs)
- unexplained

Hypertensive emergencies

Treatment

- treat the cause if possible (pain, anxiety)
- regular drugs not taken – rapid-acting drug, give back regular drug
- regular drugs not enough – rapid-acting drug, start new medication, continue the previous
- Rapid BP lowering usually not necessary, normal blood-pressure to be reached within days/weeks
- Acute impairment of on organ system might need more aggressive treatment

Hypertensive emergencies

Treatment – drugs

- captopril 25 mg po.
- uradipil 12,5-25-50 mg. iv.
- nitroglycerine spray (HF, ischemia)
- furosemide 20-40 (or more) mg iv. (HF, renal failure)
- metoprolol 50 mg po., 3-5 mg iv. (ischemia, arrhythmia)
- verapamil 5 mg iv. (arrhythmia)
- [nifedipine spray (not recommended, with beta-blocker)]

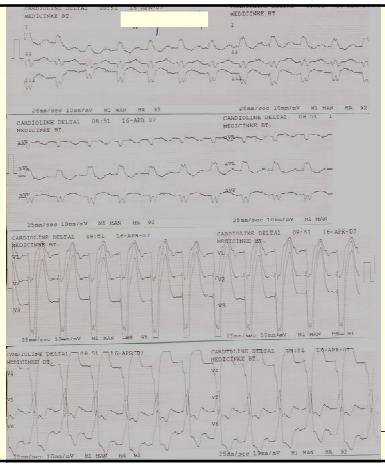
Hypertensive emergencies

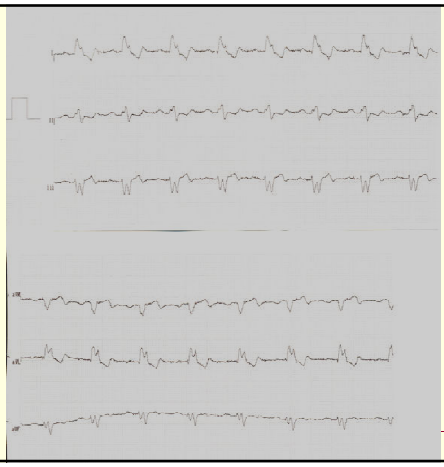
Treatment – indications of rapid BP lowering

- Acute myocardial ischemia (nitroglycerin, beta-blockers, angiotensin-converting enzyme inhibitors – usually iv.)
- CHF with pulmonary edema (nitroglycerin, furosemid, morphine iv., captopril po.)
- Hypertensive encephalopathy (nimodipine, nicardipine [verapamil] iv.)
- Follow-up

Clinical case

- 59 year-old man, history: alcohol abuse, hypertension – not treated
- History: dyspnea in rest and during the night, unable to lie
- Physical: tachycardia, 145/80 – 95, rales, no edema





Clinical case

- Diagnosis
  - ECG: sinus tachycardia, I. AV block, LBBB
  - Acute left-sided heart failure
  - Hospital: dilatative cardiomyopathy (alcoholic) ECHO: diffuse hypokinesis, EF: 25%
- Treatment: furosemide iv. 80 mg, transdermal nitroglycerin, oxygen in ambulance
- Long term treatment: ramipril, bisoprolol, furosemide, spironolactone

Clinical case 2.

- History: man, 64y, not followed-up
- Complains of abdominal pain after drinking milk, since then severe dyspnea, almost unable to walk
- Physical: edema, rales, dullness, 145/80 – 85, aortic murmur
- ECG: flat T waves in every lead
- Treatment: furosemide, nitroglycerin

- Diagnosis: acute heart failure
- ECHO: severe aortic stenosis – surgery?

Heart failure – pulmonary edema

- **Most common acute causes**
  - Ischemic (or other origin) myocardial malfunction
  - Severe hypertension
  - Arrhythmias (AF with rapid ventricular rate, VT)
  - Structural heart or valve diseases
  - Myocarditis, pericarditis
  - Physical stress
  - Other: infection, PE, noncompliance with medical therapy, hyperthyroidism

Heart failure – pulmonary edema

History

- Dyspnea (exertion, in rest, paroxysmal nocturnal)
- Cough productive of pink, frothy sputum
- Edema (legs, hip)
- Weakness
- Other diseases (CMP, valvular heart disease, alcohol use, hypertension, IHD)

Heart failure – pulmonary edema

- **Physical**
  - Peripheral edema, jugular venous distention, and tachycardia – most sensitive
  - Orthopnea, tachypnea
  - Hypertension
  - Pulsus alternans
  - Skin – diaphoretic or cold, gray, cyanotic
  - Wheezing or rales, effusion
  - Apical impulse displaced laterally
  - Cardiac auscultation S3 or S4.

Heart failure – pulmonary edema

Treatment

- Reduce venous return (elevate the head of the bed, patient in sitting position, legs dangling
- Obtain iv. access, administer oxygen
- Medications: see next slide
- Consider treatable cause (arrhythmia [lidocain, metoprolol, atropin], fever, severe hypertension [ACEI, BB], ischemia, bronchospasm [albuterol])
- Intubation, facemask – PEEP valve

Heart failure – pulmonary edema

Treatment

- Nitroglycerine spray – 1 spray every 5-10 m, max. 3 times, transdermal patch – check BP
- Furosemide iv. 40-80 mg
- Morphine 5-10 mg – decrease ineffective hyperventilation, sympathicotonia
- Nitroglycerine – 5 mg into 500 ml infusion, 10-20 drops/min.=5-10 µg/min
- Dopamin – 50 mg into infusion, 60 drops/min

Clinical case

- 50 year-old man, bus driver, BMI: 31,4 kg/m^2
- History: joint gout, sinus tachycardia
- Current: pain and tenderness of right leg, calf muscle
- Physical: minimal edema

- Obvious cause : erroneous pedals
- Ultrasonography: normal

Clinical case

- 45 year-old man, obese, history of diabetes, erysipelas, ???
- Edema of leg for 4 days, no pain, no fever
- Swollen leg, no pain on dorsiflexion

- History: 1984 – thrombophlebitis, 1989 – trauma of leg, followed by thrombophlebitis
- Ultrasonography, d-dimer: DVT
- No thrombophilia, tumor

Deep Venous Thrombosis

- Bedside diagnosis of venous thrombosis is insensitive and inaccurate (little obstruction, rapidly developed collaterals, minimal inflammation)
- History / Physical
  - Rapid development of unilateral edema
  - Leg pain on dorsiflexion (Homans sign)
  - Tenderness (calf muscle, course of the deep veins)
  - Warmth and erythema
  - Swelling, collateral superficial veins

Deep Venous Thrombosis

- Risk factors (sensitive)
  - Age
  - Immobilization (pregnancy, surgery, trips)
  - Diseases (DVT, cancer, stroke, AMI, CHF, nephrosis, CU, SLE)
  - Trauma, fractures
  - Hematologic diseases (PV, thrombocytosis, coagulation disorder)
  - IV. drug abuse, contraceptives

Deep Venous Thrombosis

Treatment

- Transfer to hospital
- Patient should not walk (ambulance transfer)
- LMWH, heparin
- Compression stockings

- Diagnosis
- D-dimer + ultrasonography

- Follow-up: rule out malignancies, thrombophilias

Pulmonary embolism – DVT

- History
  - Pain (chest, back, shoulder, respiratophasic or pleuritic – youngsters!)
  - Dyspnea, hemoptosis, cough, hiccough
  - Syncope
  - Fever
  - Pneumonia – not improving after treatment
  - DVT

Pulmonary embolism – DVT

Physical

- Many patients have atypical or no symptoms
- Chest wall tenderness
- Wheezing, pulmonary rub, rales
- Arrhythmia (atrial), tachycardia
- Hypotension in massive PE (acute cor pulmonale)
- Accentuated second heart sound, gallop rhythm
- Diaphoresis, cyanosis, signs of DVT

ECG

- tachycardia and nonspecific ST-T abnormalities
- right heart strain (P-pulm, right dev, RBBB, SI-QIII-TIII, AF)

Acute bronchial asthma COPD exacerbation

Causes

- Infection
- Allergens (pets, pollen, aspirin, food)
- Exercise
- Air pollution

History

- Severity (medicines taken, hospitalization)
- Duration of symptoms
- Degree of dyspnea
- Medicine compliance

Acute bronchial asthma

Physical

- Ability to speak
- Level of alertness
- Stridor, wheezing, inspiration-expiration ratio
- Tachycardia, tachypnoe
- Accessory muscle use, nasal flaring
- Ability to lie < sitting position < hunched-over sitting position (tripod position)
- Diaphoresis
- Cyanosis

Acute bronchial asthma

Treatment

- Oxygen, if available
- beta-adrenergic agents in nebulizer (salbutamol, albuterol spray)
- Ipratropium (smokers, COPD)
- Methylprednisolone 80-125 mg iv.
- Theophylline max. 3 mg/kg iv.
- Terbutaline 0.25 mg sc., Epinephrine 0.3-0.5 mg sc. (in infusion 20 drop/min)
- Obtain iv. access if necessary

Clinical case

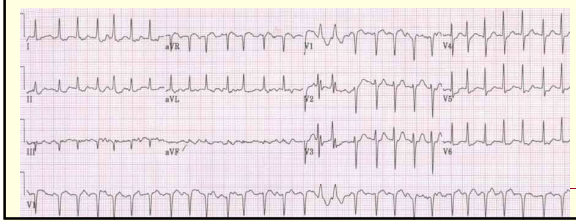
- 73 year-old man, history: hypertension, arthrosis, hyperlipidemia
- Previous year: lab tests – normal, ABPM: controlled hypertension (112/62-69), ECG: sinus rhythm, left R axis, QRS:100ms, normal repol.
- Current history: swollen, painful knee
- Physical: arrhythmia, 145/82 Hgmm

Clinical case

- Diagnosis: paroxysmal atrial fibrillation for unknown period of time
- Treatment
  - bisoprolol to therapy (perindopril, htz)
  - warfarin
- Regular control visits: heart rate, INR, heart failure
- ECHO: concentric ventricular hypertrophy, EF:50%, atrial and ventricular dilatation
- Rate control since then

Clinical case 2

- 71 year-old woman, history: COPD (smoker)
- Viral infection, increased medication doses of theophylline, formeterol, fenoterol+ipratropium
- Complains of weakness, palpitation
- Physical: 100/70 - 170



Clinical case 2

- Treatment: 5 mg verapamil iv.
- Transfer to hospital
- Sinus rhythm returned spontaneously after reviewing medication
- ECHO: normal findings
- Anticoagulation and bisoprolol started

- 3 months in sinus rhythm, Holter-monitoring
- Anticoagulation stopped

Atrial fibrillation

- **History:**
  - Palpitations
  - Fatigue or poor exercise tolerance
  - Dyspnea
  - Chest pain (true angina)
  - Syncope

Atrial fibrillation

- **Physical:**
  - Irregular pulse, with or without tachycardia
  - Hypotension and poor perfusion
  - Signs of embolization (TIA, stroke, peripheral arterial embolization)
  - Signs of congestive heart failure (rales, edema, gallop)
- **ECG**
  - irregular QRS complexes, no P wave (inferior, V1-2)

Atrial fibrillation

- **Causes – acute diseases:**
  - AMI, Pericarditis, PE
  - Cardiothoracic surgery
  - Holiday heart, Illegal drugs (cocaine, amphetamine)
  - Lone fibrillation
- **Chronic**
  - Valvular diseases
  - Hypertension
  - Structural heart diseases, IHD

Atrial fibrillation

Treatment

- Rate control (if necessary):
  - beta-blockers: metoprolol 5-10 mg iv. (thyrotoxicosis, AMI, sympathycotonia)
  - verapamil or diltiazem: 2,5-5 mg/10-20 mg iv.
  - digoxin: 0,5 mg iv. – in CHF, controversial: acts slowly, can increase duration of paroxysmal AF, do not prevent rapid ventricular rate

Clinical case

- 26 year-old man, history: nothing remarkable
- 10 days ago sore throat, mild fever for 2 days
- Got better a week ago, throat still feels dry, „itching”
- Weakness, lost 8 kg-s of his weight during a week
- Thirsty all the time, drinks much, urinates often
- Blood sugar level: 24 mmol/l
- Treatment: iv. fluid replacement, transfer to hospital
- Diagnosis: Type 1 diabetes mellitus

Clinical case 2

- Same young man
- 4 hours ago started vomiting, shivers, cold sweat, looks anxious
- Blood sugar level: Low
- No appetite, eat less for breakfast and lunch
- Treatment: glucosum 40% - 50 ml, 50 ml in 500 ml saline, transfer to hospital
- Diagnosis: hypoglycemia, acute viral gastritis
- Got better quickly

Hypoglycemia

Glucose level at which an individual becomes symptomatic (< 2,0 mmol/l – variable)

- **History**
  - DM – insulin, oral hypoglycemic agent
  - alcoholism, hepatic failure, starvation
- **Physical:**
  - CNS: headache, confusion, focal neur. findings
  - Adrenergic symptoms: sweating, anxiety, tremulousness, nervousness, palpitation
  - GI symptoms: hunger, nausea

Hypoglycemia

- **Causes**
  - exercise
  - medication overdose, change
  - diet change
  - infections
- **Treatment**
  - Administer Glucosum 40%, 50-100 ml
  - Glucagon 1mg im. iv. sc.
  - Drinking/Eating

Hyperglycemia, DKA

- Absolute or relative insulin deficiency cause: hyperglycemia, dehydration, and acidosis
- Most common causes: infection (UTI), disruption of insulin treatment, new onset of diabetes, serious disease (AMI, stroke, trauma)
- History/Physical
  - thirst, polyuria, polydipsia, weight-loss, weakness, fatigue, confusion, abdominal pain
  - Ill appearance, dry skin, mucous membranes, decreased skin turgor, tachycardia, hypotension, tachypnea, ketotic breath
- Treatment: isotonic saline solution up to 1 L (+ insulin), hospitalization

Clinical case

- 20 year-old woman, with history of asthma
- Strong abdominal pain this night, nausea, vomiting
- No dysuria, normal frequency, had normal stool in the evening
- Got better, no nausea, still moderate flank pain on the right side
- Physical: flank tenderness, dipstick: blood positive
- Diagnosis: acute nephrolithiasis
- Treatment: diclofenac 2x75 mg orally, drotaverin
- Renal RTG: technical error US: 2 calix stones
- Referral to an urologist

Clinical case 2

- 45 year-old man, history: nothing remarkable, known renal calculi
- Excruciating pain, radiating from the flank to lower abdomen on the left side
- Crawling on the floor, wife and three children watching frightened, astonished
- Took some oral pain killers (?)
- Diagnosis: acute nephrolithiasis
- Treatment: obtain iv. access, morphine iv. (to achieve quick effect), hospitalization

Acute nephrolithiasis

- History
  - Known renal calculi
  - Mild or severe deep flank pain – kidney
  - Unrelenting, excruciating pain, radiating from the flank to lower abdomen and testicles or labia on the affected side – ureter
  - Urinary frequency and dysuria – ureter, vesica urinae
  - Intense nausea
  - Unable to lie still

Acute nephrolithiasis

- Physical
  - Gross hematuria
  - Flank tenderness (ipsilateral)
  - Tenderness on the affected side
  - Palpable kidney
  - Bowel sounds may be hypoactive

Acute nephrolithiasis

Treatment

- 20% of patients require hospital admission because of unrelenting pain, inability to retain enteral fluids, proximal urinary tract infection (UTI), or inability to pass the stone
- Analgesic: diclofenac (75mg) im., iv. metamizole (1-2 g), tramadol (50-100 mg), pethidine (25-50 mg), morphine 5-10 mg
- Smooth muscle relaxants: drotaverine 80 mg, nitroglycerine, nifedipine orally or spray
- Antiemetics: B6 – 50 mg, metoclopamide 10 mg

Cholecystitis and Biliary Colic

- 10-20% of adults have gallstones, 1-3% of them develop symptoms of gallstones
- Major risk factors: gender, obesity, age
- Complicated cholecystitis: 25% mortality (gangrene, empyema, perforation of gallbladder)

Cholecystitis and Biliary Colic

- History
  - 1-5 hours of severe, constant (not colicky) pain, in the epigastrium or right upper quadrant, may radiate to the right scapular region or back
  - Develops hours after a meal (large, fatty), occurs frequently at night
  - Nausea, vomiting, pleuritic pain
  - Persistent pain (hours-days), vomiting, fever – cholecystitis

Cholecystitis and Biliary Colic

- Physical
  - Patients with gallbladder colic have relatively normal vital signs
  - Epigastric or right upper quadrant tenderness
  - Bloating
  - Guarding or fullness in the right upper quadrant on palpation
  - Peritoneal signs!
  - Jaundice is rare
  - Hidrops vesicae fellae

Cholecystitis and Biliary Colic

- Treatment
  - Cholecystitis, peritoneal signs, jaundice, fever, persistent pain usually means hospitalization
  - Diet
  - Antispasmodics: drotaverine (80 mg)
  - Analgesics: metamizole (1-2 g), pethidine (meperidine 25-75 mg)
  - Antiemetics: Vitmaine B6 50 mg, metoclopamide 10 mg, thiethylperazine 0,5-1 g

Clinical case

- Man, aged 59, complains of deep epigastric pain for 4 days, fever for 3 days, lack of appetite, sweating when eating
- Normal stool (less in volume, because hardly eats), urine
- History: gallstones
- Physical: epigastric rigidity, mild tenderness in the right, medium tenderness in the epigastric and left upper quadrant
  - Normal vital signs, 104/71 -100
  - Jaundice

Clinical case

- Treatment: drotaverin, metamizol iv.
- Transfer to hospitals – Pancreatitis?
- Lab test: GOT:81 U/l, GPT:73 U/l, GGT:124 U/l, Alc. Phos:403 U/l, Bilirubin:89 umol/l, Amylase:1491 U/l, WBC:14.8 G/l, CRP:248.52 mg/l, We:56 mm/h
- US: overlying gas shadows, cholelithiasis, choledocholithiasis
- Final diagnos: mild acute pancreatitis, caused biliary stones
- Referred for cholecystectomy later

Acute pancreatitis

- Inflammatory process in which pancreatic enzymes autodigest the gland
- Mild 80%, severe 20% of presentations
- History: epigastric pain radiating to the back, nausea and/or vomiting
- Phycisal: abdominal tenderness, distension, guarding, and rigidity, mild jaundice, diminished bowel sounds, fever, tachycardia, tachypnea, hypotension

Acute pancreatitis

- Causes
  - Long-standing and / or binge alcohol consumption
  - Biliary stone disease
  - Rare causes: medications, ERCP, hypertriglyceridemia, peptic ulcer, trauma, infections, cancer
- Workup
  - Lab tests, US, CT, plain radiography
- Acute treatment
  - Analgesics (metamizol, pethidine), spasmolytics (drotaverine), iv. access

Clinical case

- 31 year-old man, history: nothing remarkable
- Repeating episodes of low back pain, URTI
- Strong pain in stomach, weight loss for month
- Physical: epigastrial tenderness, anxiety, depressed mood, carcinophobia
- Lab test: normal, US: normal, Endoscopy: gastritis, reflux disease
- Accepted gastroenterological follow-up, he and his wife rejects referral to psychiatrist

Clinical case

- Keeps losing weight, pain worsens, control at gastroenterologist: recommends hospitalization for evaluating for Addison, tumor (weight loss, weakness)
- During control visit suddenly palpitation, chest pain, collapsing
- Diagnosis: depression, panic attack, somatization
- Background: family conflicts in childhood, personality traits
- Treatment: ambulatory psychiatric follow-up, hospitalization, antidepressants, anxiolytics

Depression and Suicide

- Depression is a potentially life-threatening mood disorder
- Ninth leading reported cause of death, third in youngsters
- More men than women die from suicide by a factor of 4.5:1, extremely high rates over age 85
- 8-25 attempted suicides occur for every completion, these are mainly expressions of extreme distress
- Risk factors: history of mental problems or substance abuse, suicide, family violence, separation

Depression and Suicide

- Suspicion for the diagnosis, especially in populations at risk for suicide
- 70% of patients attempting suicide has seen PCP within a month, often „cry for help”
- Thoughts – Contemplating – Plans – Attempt
- If suicidality is present, hospital admission should be undertaken

Panic disorder

- Frequently present with various somatic complaints
  - Palpitations
  - Sweating
  - Trembling or shaking
  - Shortness of breath or feeling of smothering
  - Choking sensation
  - Chest pain or discomfort

Panic disorder

- Somatic complaints
  - Nausea or abdominal distress
  - Feeling dizzy, unsteady, lightheaded, or faint
  - Derealization or depersonalization
  - Fear of losing control or going crazy
  - Fear of dying
  - Paresthesias (ie, numbness or tingling sensations)
  - Chills or hot flashes

Panic disorder

- Medical disorders:
  - Angina and myocardial infarction (dyspnea, chest pain, palpitations, diaphoresis)
  - Cardiac dysrhythmias (palpitations, dyspnea, syncope)
  - Pulmonary embolism (dyspnea, tachypnea, chest pain)
  - Asthma (dyspnea, wheezing)
  - Hyperthyroidism (palpitations, diaphoresis, tachycardia, heat intolerance)

Panic disorder

- Medical disorders
  - Hypoglycemia (sweating, anxiety, tremulousness, palpitation)
  - TIA (facial, arm paresthesias)
  - Pheochromocytoma (headache, diaphoresis, hypertension)
  - Hypoparathyroidism (muscle cramps, paresthesias)
  - Seizure disorders

Panic disorder

- Dyspnea – no cyanosis, orthopnoe, (hi)cough, sputum, accessory muscle use, no aberration in physical examination of the lungs
- Chest pain – stinging pain in the heart
- Diaphoresis – on the palms, cold hands
- Palpitation – not paroxysmal, no syncope, no urinating afterwards, no injuries
- Paraesthesia – perioral, tongue: bilateral, both hands
- Normal serum glucose level

Panic disorder

- **Physical:**
  - The patient may have an anxious appearance.
  - Tachycardia and tachypnea are common; blood pressure and temperature may be within the reference range.
  - Cool clammy hands may be observed

Panic disorder

- **Therapy**
  - Education, reassurance (symptoms are neither from a medical condition nor from a mental deficiency. 30-50% placebo response rate)
  - Remain empathic and nonargumentative „It's nothing serious" – „It's related to stress"
  - Benzodiazepines: immediate antipanic effects (diazepam 10 mg im./iv., alprazolam 0,5 mg po.)
- Long-time treatment: SSRIs, cognitive therapy

Thank you for your attention!