Cardio I: Shock, CHF, HTN, ACS Cheat Sheet

by ksellybelly via cheatography.com/19318/cs/2380/

Shock

Definition

Severe cardiovascular failure caused by poor blood flow or inadequate distribution of flow

1) Hypovolemic Shock

Hemorrhage, fluid loss, loss of plasma or electrolytes. All result in decreased intravascular volume. Caused by obvious loss or subtle third-space sequestration.

2) Cardiogenic Shock

MI, dysrhythmias, heart failure, valve/-septal failure, HTN, myocarditis, cardiac contusion, septum rupture, myocardiopathies

3) Obstructive Shock

Tension PTX, pericardial tamponade, obstructive valvular disorder, pulmonary embolism

4) Distributive Shock (poorly regulated distribution of blood volume)

Septic shock, SIRS (signs of systemic inflammation w/out end-organ damage), anaphylaxis, neurogenic shock

Clinical features

Hypotension + Tachycardia (also AMS, orthostatic changes, metabolic acidosis, insulin resistance, oliguria/anuria, peripheral hypoperfusion)

Sign of end-organ hypoperfusion

Cool or mottle extremities, and weak ("thready") or absent peripheral pulses

Treatment

1) ABCs. 2) Treat the underlying cause. 3) T-Burg maximizes brain perfusion 4) O2 + IV fluids 5) Urine output at least 0.5 mL/kg/hr 6) Cardiac monitoring and central venous pressure 7) Pressors (Dopamine, etc.) will increase GFR, contractility, HR

ACS (Acute Coronary Syndromes)

Definition

Spectrum of problems ranging from unstable angina to MI

Classified into 2 types

ST-elevated and Non-ST-elevated events

Most common etiology of MI

Preexisting atherosclerotic plaque-->thrombus formation-->prolonged myocardial ischemia-->MI

What is a common cause of death in MI patients before they can get to hospital?

V-fib

Clinical features

**Chest pain (most common), sweating, anxiety, weakness, dyspnea, light-headedness, syncope, N/V, fever

EKG changes

Acute MI: progression from peaked T-waves-->ST-degment elevation/depression-->Q-wave-->T-wave inversions (hours-days)

**One of the most sensitive tests to quantify extent of infarction

MRI w/ gadolinium

Treatment--all patients

IV fluids + O2 + NO + pain management +/- benzo + anti platelet/anticoagulation + B-blockers +/- CCBs

Treatment--ACS + STEMI

Reperfusion interention: aspirin + clopidogrel, coronary angiography w/in 90 min, thrombolytic therapy, statin therapy

Orthostasis/Postural Hypotension

Definition

>20mmHg drop in systolic pressure between supine and sitting &/or standing measurements

Etiology

May be related to reduced cardiac output, paroxysmal cardiac dysrhythmias, low blood volume, medications, and various metabolic and endocrine disorders

A reversible cause of syncope and major cause of falls in this population

Elderly

If the cause is depleted blood volume

then there will also be a rise in pulse of more than 15 bpm when testing orthostatics

If there is no change in pulse accompanying the change in BP

then consider CNS disease or peripheral neuropathies

Labs and Treatment

Directed at the specific cause

Ischemic Heart Disease

Definition

Characterized by insufficient oxygen supply to cardiac muscle

Etiology

1) **Atherosclerotic narrowing (most common). 2) Constriction of coronary arteries. 3) (Rare) congenital, emboli, arteritis, dissection

Risk Factors

Metabolic syndrome, male, older age, smoking, FmHx, HTN, DM, low-estrogen state, abdominal obesity, inactivity, dyslipidemia, EtOH, low fruits/veggies (cocaine-->MI)

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Ischemic Heart Disease (cont)

Metabolic Syndrome is 3 or more of:

abdominal obesity, Tri>150, HDL<40-men<50women, fasting sugar>110, HTN

Clinical Features

Angina pectoris (chest squeezing/pr-essure, can radiate, <3min.), three types:

1) Stable Angina

Exacerbated by physical activity, relieved by rest

2) Prinzmetal's (Variant) Angina

Caused by vasospasm at rest, exercise capacity preserved

3) Unstable Angina

Increasing pattern of pain in previously stable patients. Occurs at rest or with exertion.

Levine's Sign

Clenched fist over sternums and clenched teeth

How to relieve angina

Sublingual nitroglycerin

EKG Findings

Horizontal or downsloping ST-segment depression

Treatment

Lifestyle changes, NO, nitrates, B-blockers, CCB, Ranolazine, ASA/Clopidigrel, revascularization

CHF

Definition

Clinical syndrome: dyspnea + water/-sodium retention

Results from changes in 1+ of the following

Contractile ability of heart muscle, preload and after load of the ventricle, and heart rate

CHF (cont)

Etiologies of these changes

MI, pericardial disorders, valvular disorders, congenital abnormalities, and non cardiac causes (high-output heart failure from thyrotoxicosis or severe anemia)

CHF adversely affects

Left atrial pressure + cardiac output

Clinical features of LEFT-sided failure

Exertional dyspnea, non-productive cough, fatigue, orthopnea, PND, basilar rales, gallops, exercise intolerance

Clinical features of RIGHT-sided failure

Distended neck veins, hepatic congestion, nausea, dependent pitting edema, *edema + hepatomegaly, (R-sided failure often caused by L-sided failure)

Other symptoms of CHF

Nocturia, cold/clammy skin, hypotension, narrow pulse pressure, S3 gallop

CXR signs

Kerley B lines (aka interstitial edema)

Treatment

1) Thiazide or Loop diuretic + ACEi. 2) CCB (amlodipine). 3) Anticoagulants or antiarrhythmics 4) Pacers/difibrillators 5) Coronary revascularization/transplant

EKG Locations

Inferior	II, III, aVF
Posterior	V1, V2
Anteroseptal	V1, V2
Anterior	V1, V2, V3
Anterolateral	V4, V5, V6

Hypertension

Primary HTN

Causes 95% of cases of HTN; multifact-orial pathogenesis (genetics, salt, obesity, RAAS, NSAIDs, smoking, lack of exercise, metabolic syndrome)

Secondary HTN

coarc. of aorta, RAS, chronic steroids, Cushings syndrome, pregnancy, thyroid and parathyroid disease, primary hyperaldosteronism, parenchymal renal dz)

Essential HTN is exacerbated in this population

Males, blacks, sedentary people, smokers

Hypertensive urgency def.

Must bring down BP within hours

Hypertensive emergency def.

Must bring down BP within 1 hour to prevent end-organ damage/death

Malignant hypertension def.

Elevated BP + papilledema + enceph-alopathy/nephropathy. In untreated-->-progressive renal failure.

Complications of untreated HTN

Cardiovascular dz, cerebrovascular dz, dementia, renal dz, aortic dissection, and atherosclerotic complications

Diagnostic criteria--essential HTN

Systolic >140 OR Diastolic >90 on 3 diff. occasions

Diagnostic criteria--hypertensive urgency

Systolic >220 OR Diastolic >125

Diagnostic criteria--hypertensive emergency

Diastolic >130 + papilledema

Hypertension (cont)

Complications of hypertensive emergency

Hypertensive encephalopathy, nephropathy, intracranial bleeding, aortic dissection, preeclampsia/eclampsia, pulmonary edema, unstable angina, MI

Treatment--HTN

1) DASH diet/lifestyles changes/smoking cessation. 2) Diuretics (*HCTZ). 3) Beta blockers 4) ACEi 5) ARB 6) CCB

Treatment--HTN urgency/emergency

Parenteral agents, but don't lower BP too fast. Use NO, B-blockers, hydrazine, loops, clonidine, nifedipine

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