Syncope & Dizziness

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Goals

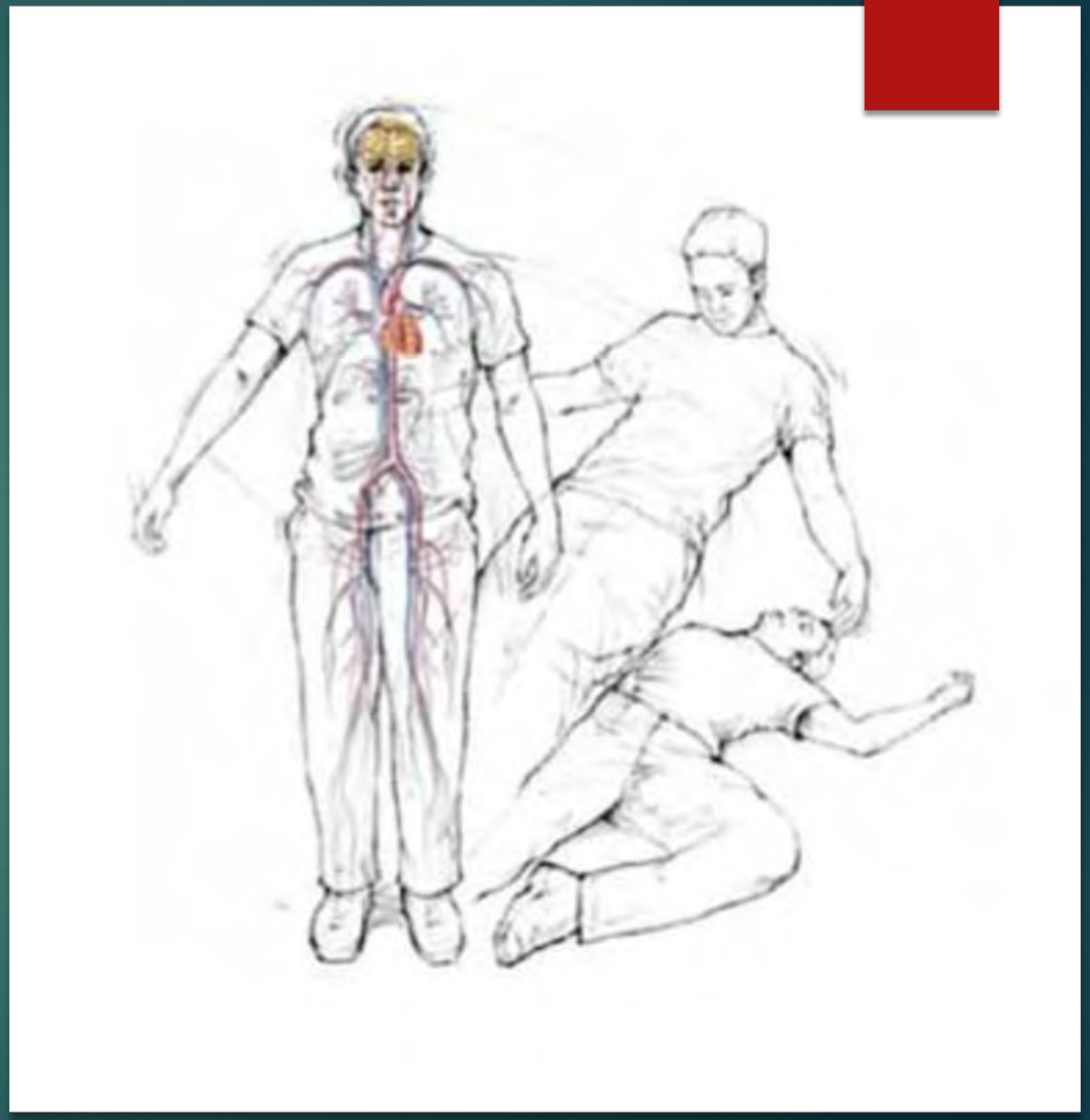
Syncope

- Transient loss of consciousness
- Global cerebral hypoperfusion

Ruben

Epidemiology

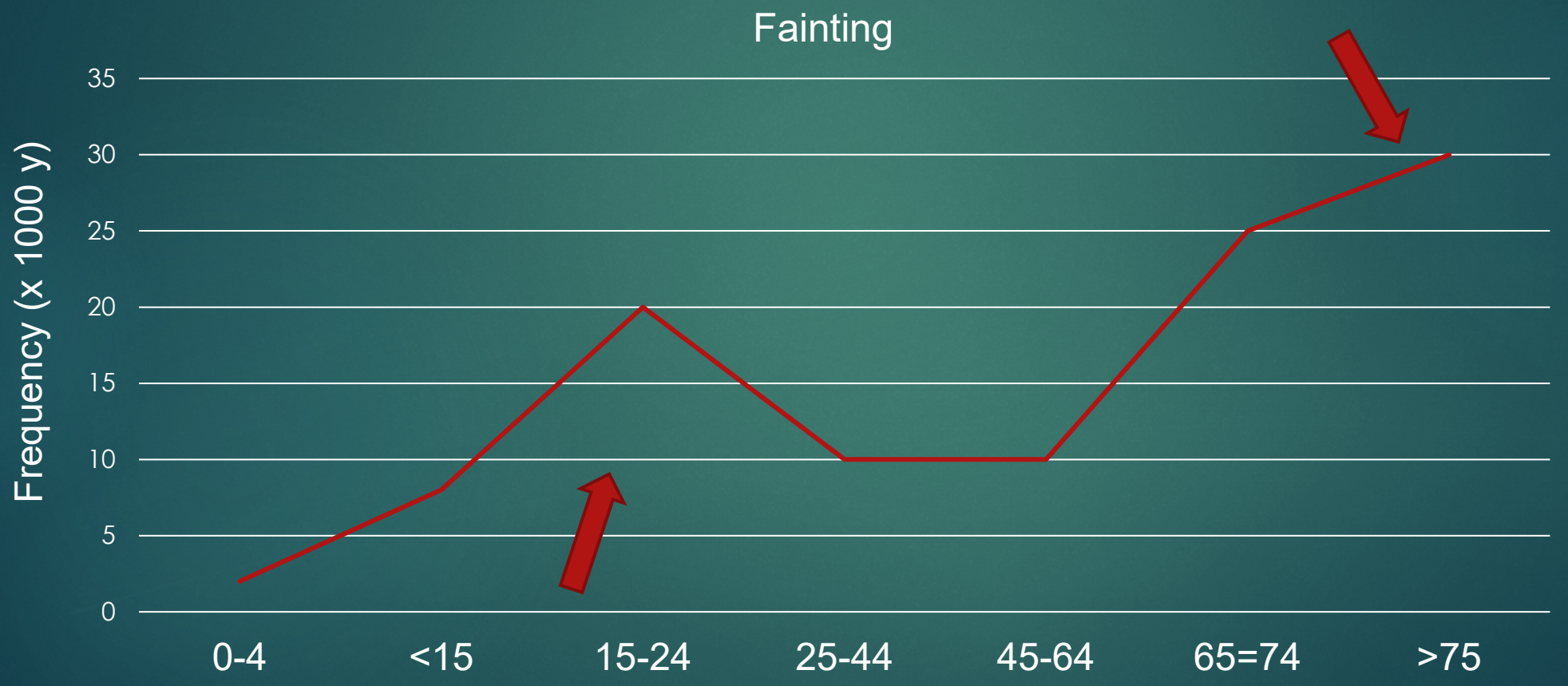
- Common: 30 % of adults over their lifetime
- Increases with age
- Top 10 reason for ED visit in 65+



Syncope in long term care

- 6% annual incidence
- 30% reoccurrence over 2 years

Frequency of fainting over lifespan



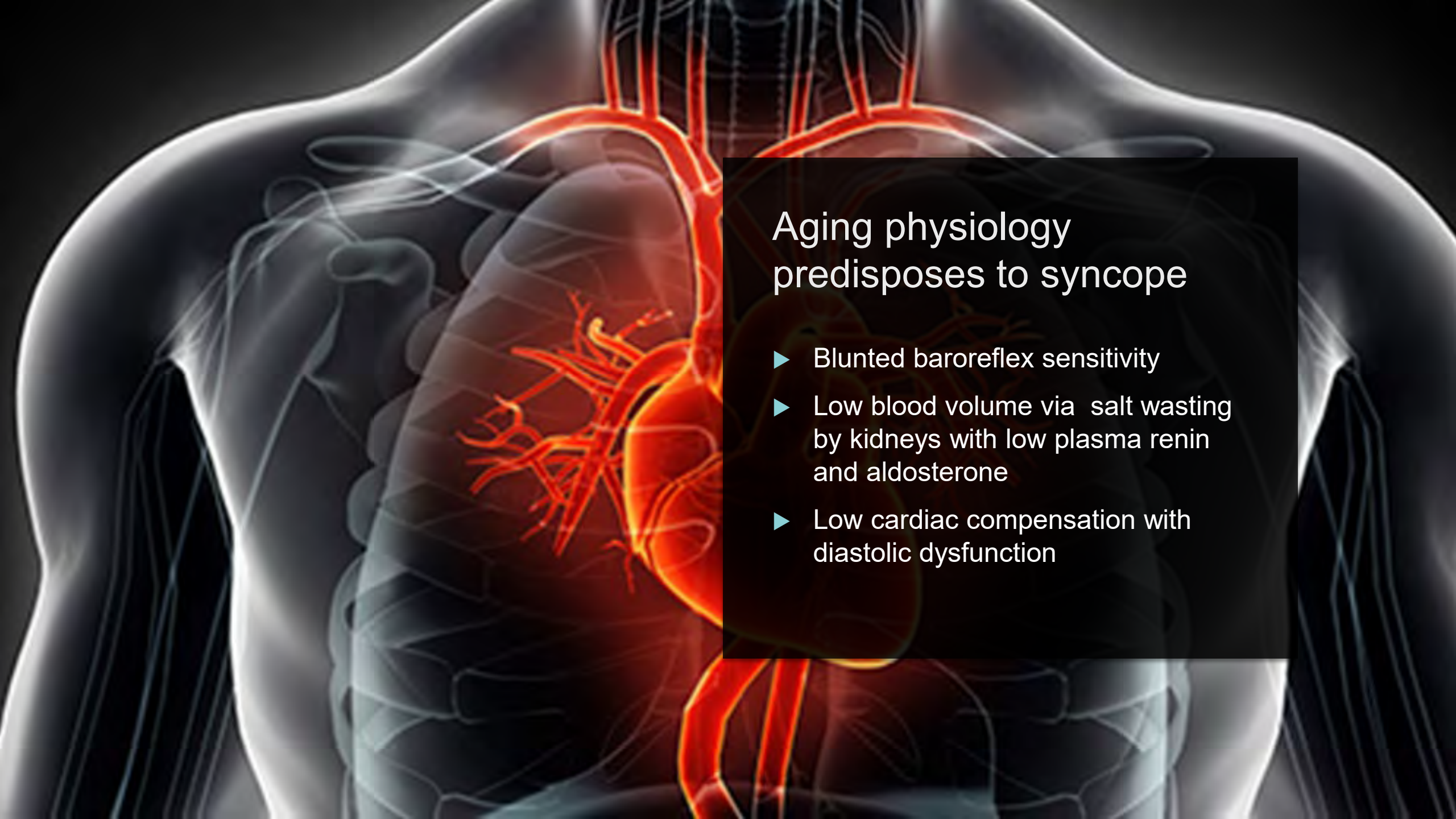
Irish Longitudinal Study

Previous yr percent	50-64 Y	65-74 Y	75+ Y	Total
Syncope	4.1	4.7	4.8	4.4
Falls	17.5	19.5	24.4	10.2

Syncope Pathophysiology

Key factors among older adults

- Blood oxygen
- Heart rate
- Blood pressure
- Blood volume
- Cerebral blood flow
- Co – morbid conditions



Aging physiology predisposes to syncope

- Blunted baroreflex sensitivity
- Low blood volume via salt wasting by kidneys with low plasma renin and aldosterone
- Low cardiac compensation with diastolic dysfunction

Aging heart rate

- Slow to compensate with stress
- Orthostatic BP changes persist with increasing age upon tilt

Causes of syncope in older people

Reflex	Orthostatic	Arrhythmias
Valvular Dx	Cerebral vascular	Multi factorial

Jackson Pollack

40% of syncopal episodes go undiagnosed after work up

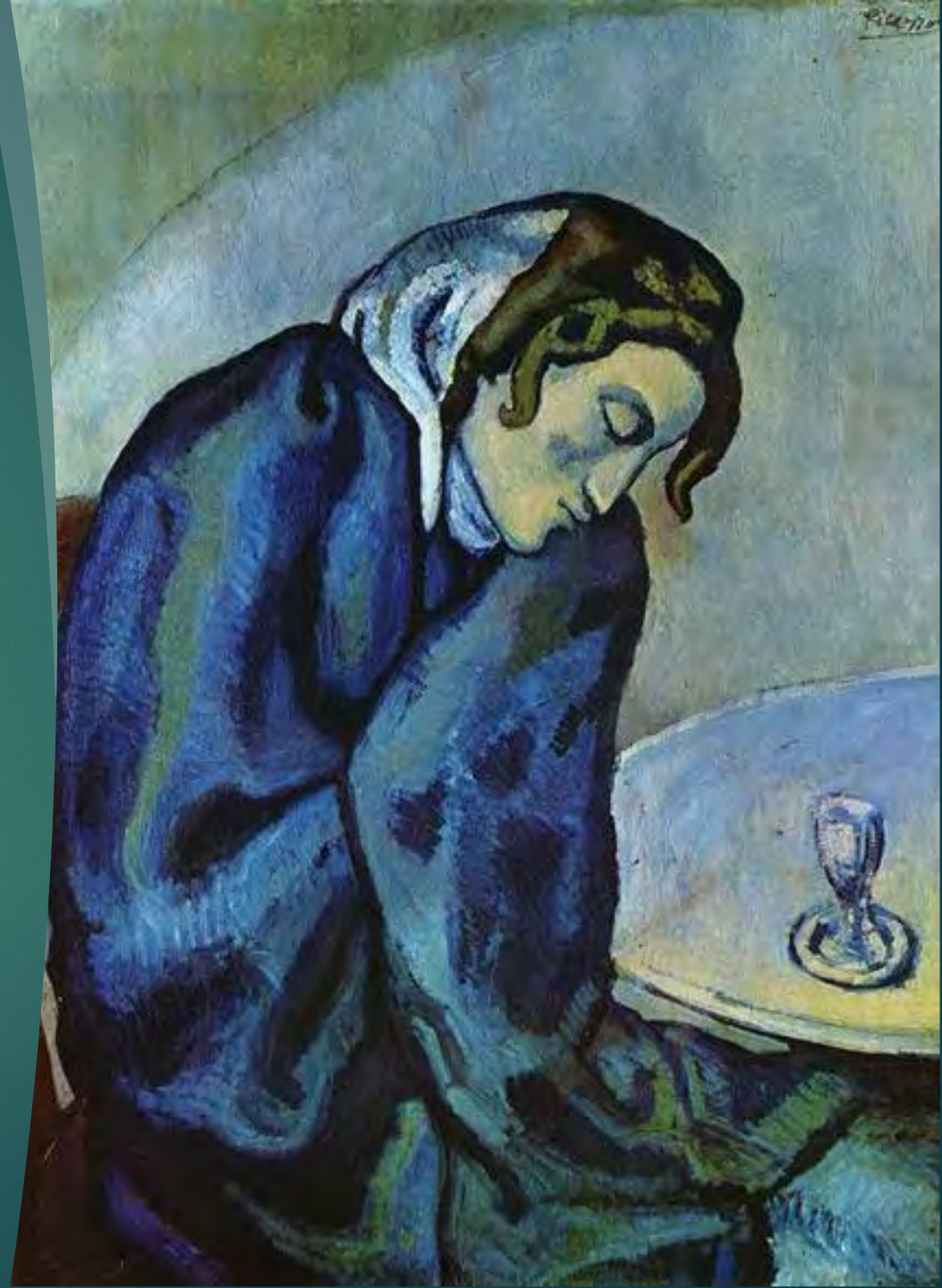
E. Manet

Reflex syndromes

- Vasovagal faint
- Carotid sinus syndrome
- Situational faint
  - Acute hemorrhage
  - Sneeze or cough
  - GI issues such as defecation or pain
  - Post micturition
  - Post exercise
  - Pain
- Trigeminal or Glossopharyngeal neuralgias

Post prandial hypotension

- Frail older women
- 30 – 60 minutes after eating



Orthostasis

- Age
- Medications (diuretics and alpha blockade)
- Autonomic failure
- Volume depletion

Pissarro

Arrhythmias

- Bradycardia / tachydardia
- SVT and V tach
- Pacemaker malfunction

Winslow Homer

Structural heart disease

- Ao stenosis
- Obstructive cardiomyopathy
- Pericarditis
- PE or pulmonary hypertension
- MI

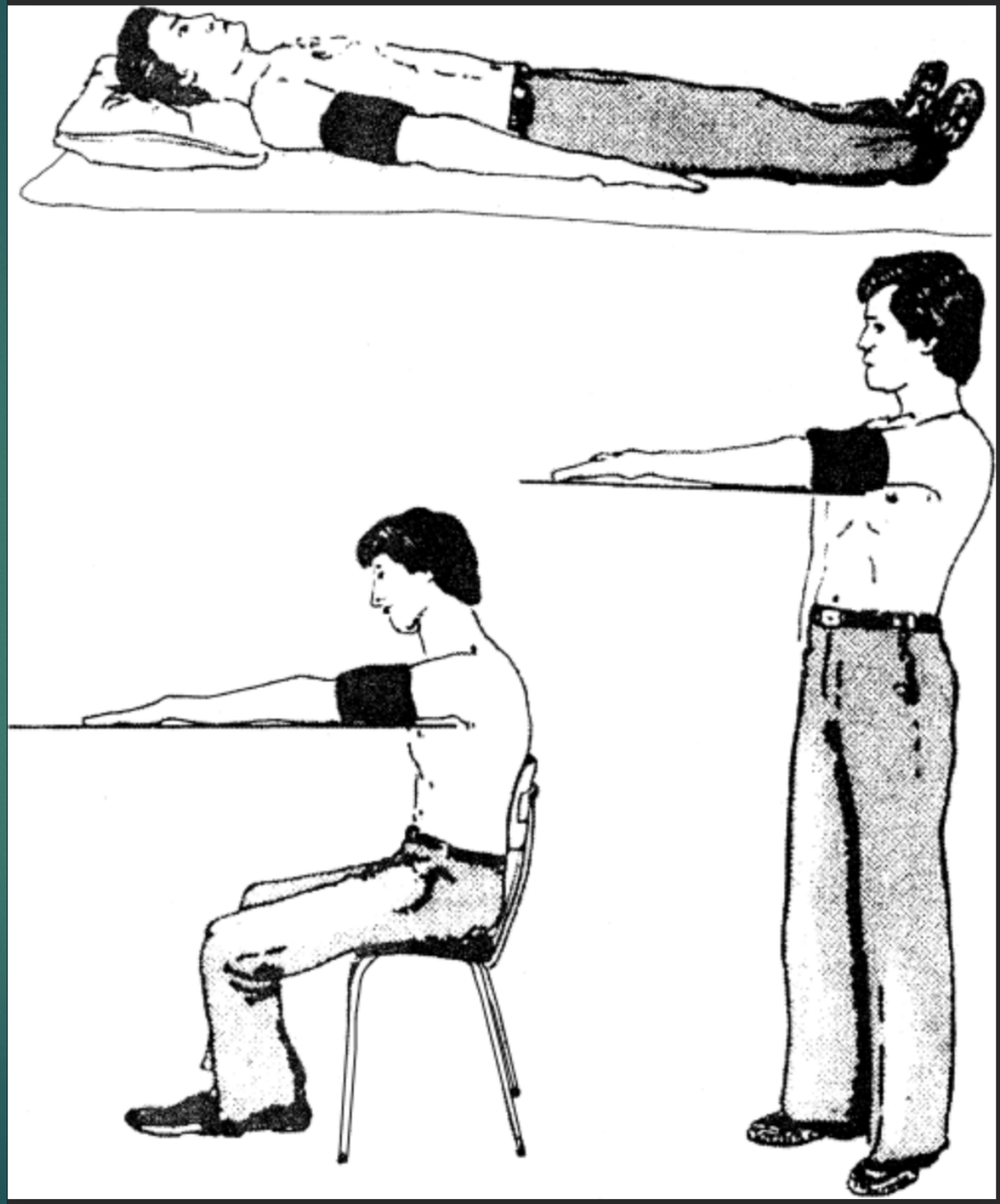
Non syncopal transient loss of consciousness

- Epilepsy
- VB insufficiency
- Metabolic disorders

E. Munch

Initial Syncope work up

- History and physical
- Orthostatic BP
- Ambulatory pulse ox
- ECG
- Carotid massage (supine & upright)



Diagnostic strategies

- Cardio
  - structural
  - rhythm
- Neuro
  - Autonomic dysfunction
  - Vascular steal syndromes
- Other
  - Psychiatric
  - Miscellaneious

If suspect cardiac etiology

Step 1

- Holter monitor
- Echocardiogram

Step 2

- EP study

Step 3

- Carotid massage
- Tilt test
- Adenosine provocation

Step 4

- Loop ECG

If suspect neurogenic etiology

Step 1

- Adenosine provocation test
- Tilt test

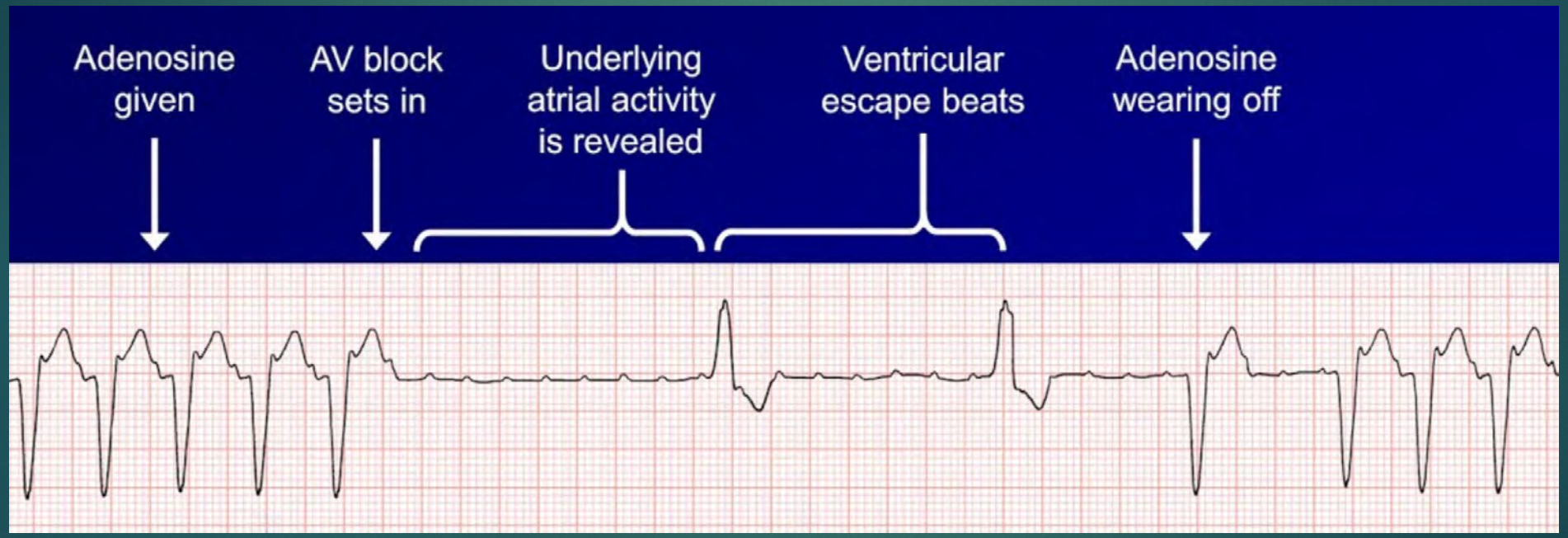
Step 2

- Echo
- Holter monitor

Step 3

- EP study if heart disease
- Loop ECG

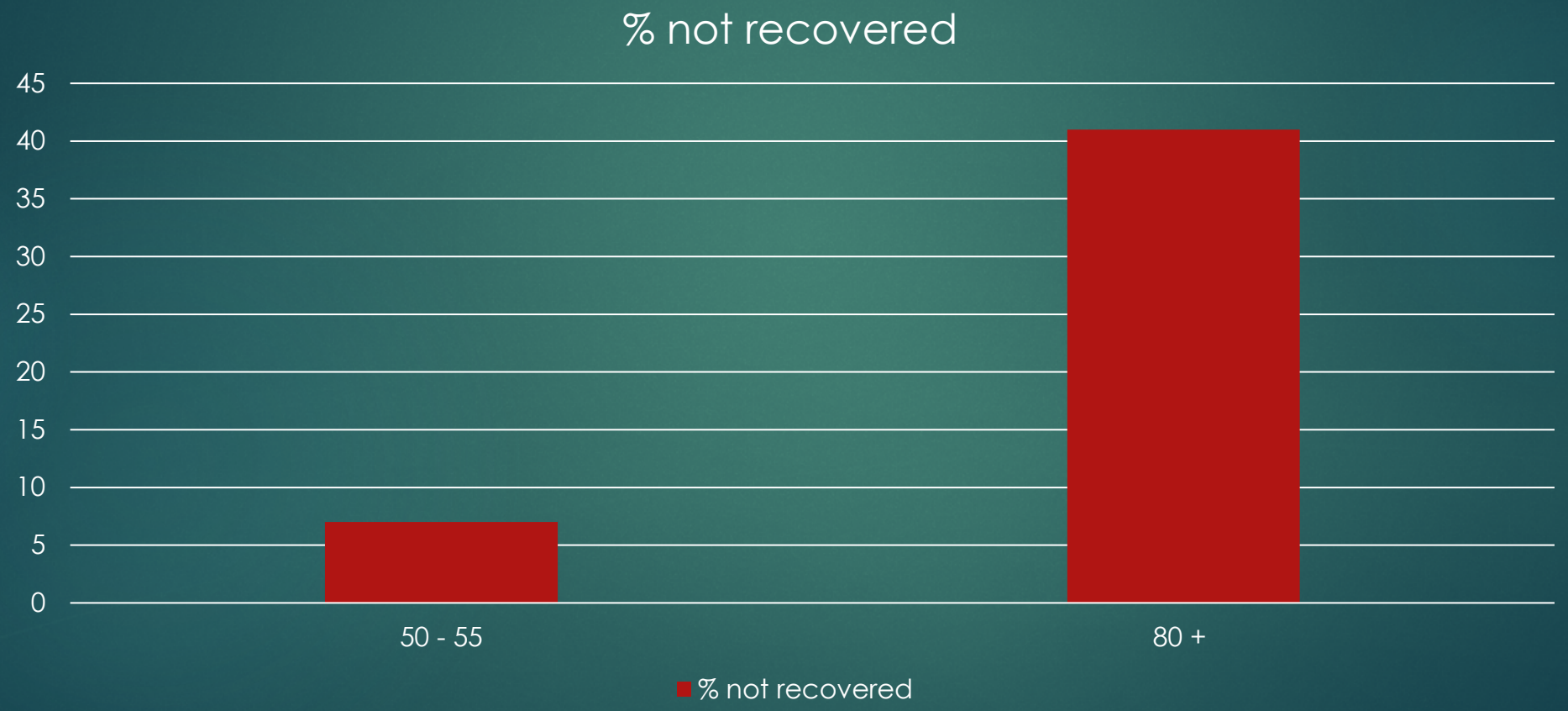
Adenosine challenge: to unearth hidden atrial issues



Orthostatic Hypotension

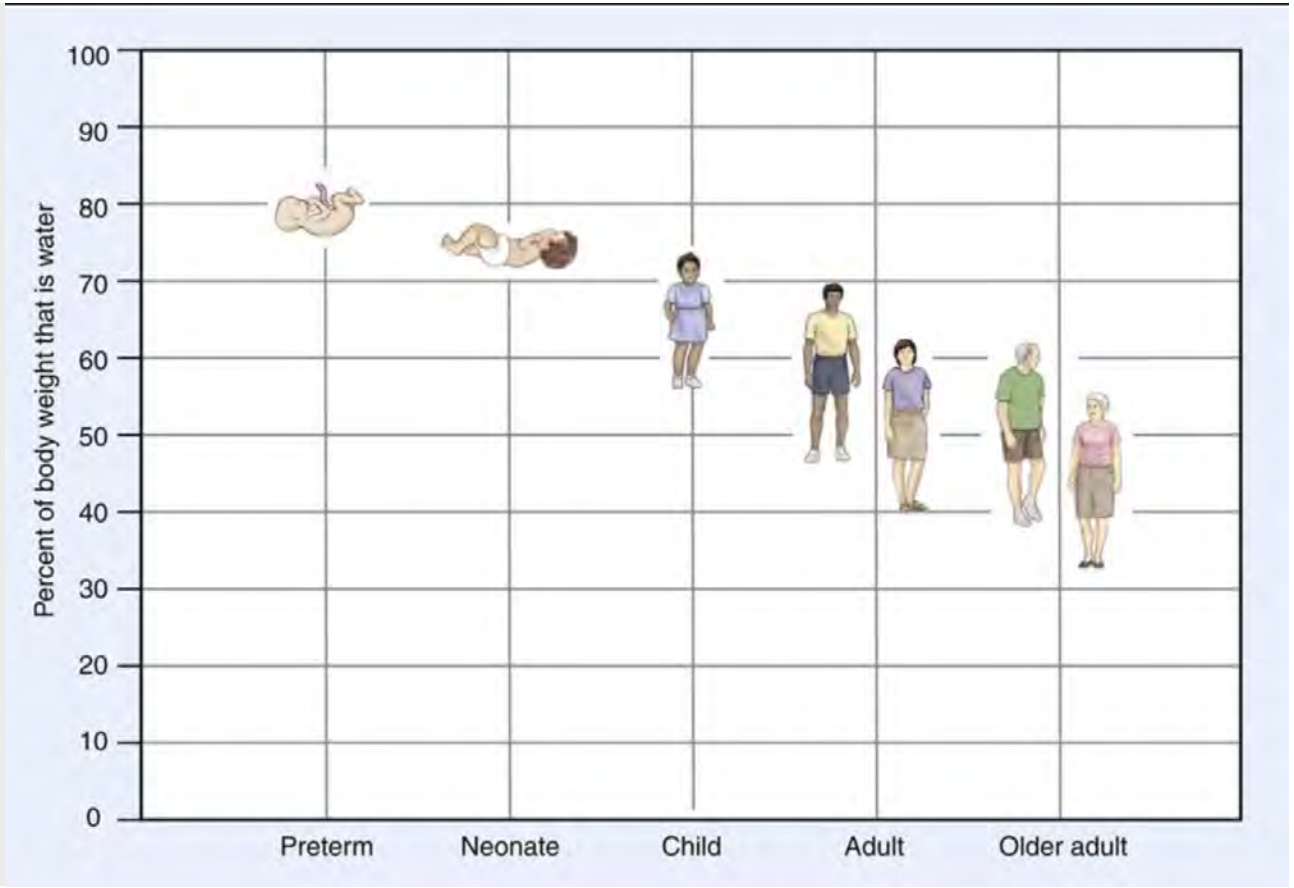
- 4 – 33% of community dwelling older adults
- 10% post prandial hypotension in long term care
- Frailty amplifies hypotension
- 14 % of syncopal episodes

Age reduces heart rate recovery from orthostatic blood pressure



Hypertension exacerbates risk of hypotension

- Total body water declines with age
- 80 % of older adults have Essential Hypertension
- Stiffer arteries
- Reduced ventricular compliance
- Less sensitive baroreceptors
- Decreased cerebral artery autoregulation



Orthostasis history

- Dizziness
- Fatigue
- Blurry vision
- Hearing problems
- Paravertebral and low back pain
- Claudication
- Chest pain

D. Rivera

Autonomic failure syndromes:

1. Pure autonomic failure
2. Multiple System Atrophy
3. Shy Drager Syndrome / Autonomic Failure with Parkinson's Disease

Pure autonomic failure

- Orthostasis
- Defective sweating
- Erectile dysfunction
- Bowel problems
- Low plasma catecholamines

Multiple System Atrophy

- Bladder disturbances
- Dysautonomia / dry mouth
- Peripheral neuropathy
- Parki – like symptoms, motor problems / muscle atrophy
- Defective ocular ROM and pupillary issues
- Stridor and breathing irregularities

- 5 cases / 100,000
- 50 – 60 year olds
- 8 year life expectancy
- Normal plasma catecholamines

Orthostasis in Parkinson's Disease

- Associated with cognitive impairment
- PD medications can contribute to orthostasis
  - Carbidopa - levodopa

Medications linked to syncope

Diuretics & vasodilators	Other anti HTN	Arrhythmiagenic
• α blockers • ACE / ARB • Ca++ blockers • Nitrates	• Clonidine • Labetalol • B blockers	• Amiodarone • Flecainide • Sotalol

Medications linked to syncope

Psychoactive

- TCAs
- Phenothiazines
- SSRIs

Alcohol

Treatment options

Diagnostic certainty

- Valve replacement
- Anti arrhythmic therapy

Multi-factorial

- Hydration
- Eliminate suspected Rx or change dose schedule
- Compression socks
- Pre – ambulation leg contraction
- Avoid sedentariness

Orthostasis management

Avoid

- Large meals
- Over heating (hot showers, hot weather)
- Straining during defecation or urination
- Alcohol
- Isometric exercise
- Hyperventilation
- Dehydration

TREATMENT

1. Correct non-neurogenic causes of OH and exacerbating factors

2. Lifestyle measures

DOs

DON'Ts

3. Non-pharmacological measures

4. Pharmacological measures

- Midodrine 3x 2.5-10 mg/d
- Droxidopa 3x 100-600 mg/d
- Fludrocortisone 0.1-0.3 mg/d
- In anemic patients: erythropoietin

5. Treatment of post-prandial hypotension

Before main meals:

- Acarbose 50-100 mg
- Octreotide 1 µg/kg of body weight s.c.
- Caffeine 250 mg

Orthostasis treatment

- Abdominal binders and waist high compression socks
- Physical conditioning exercises
- Postural training (tilt, calf compression and toe tap)
- Liberalize salt and fluid intake (if no HF)