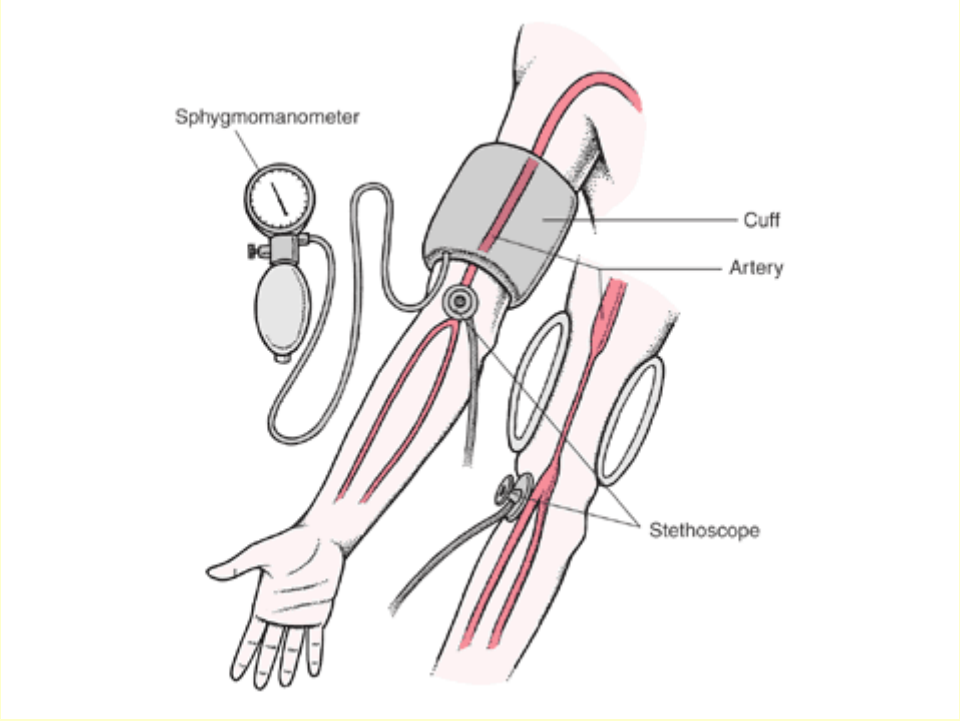
Ipertensione arteriosa

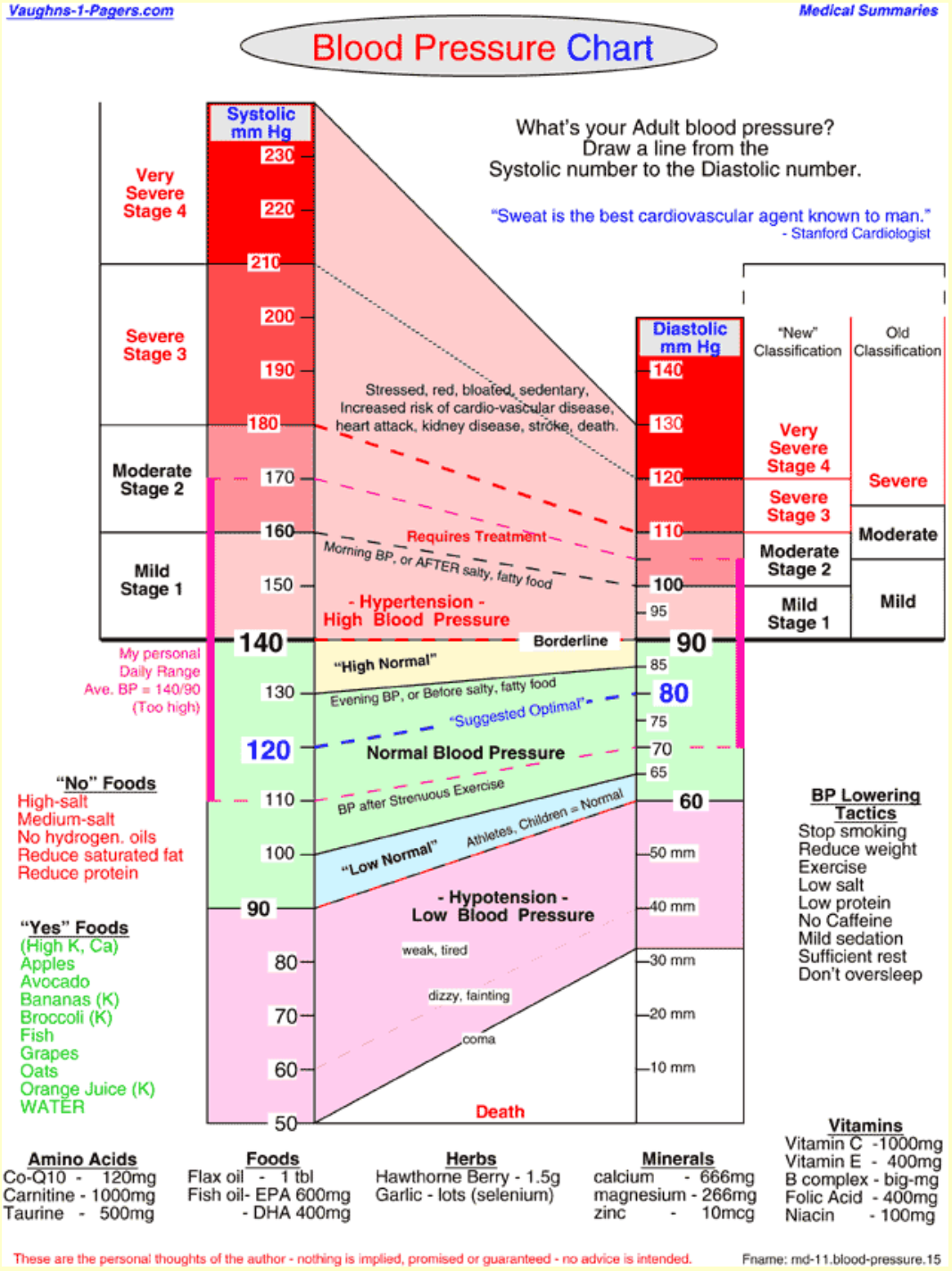
Misurazione della pressione arteriosa



Ipertensione

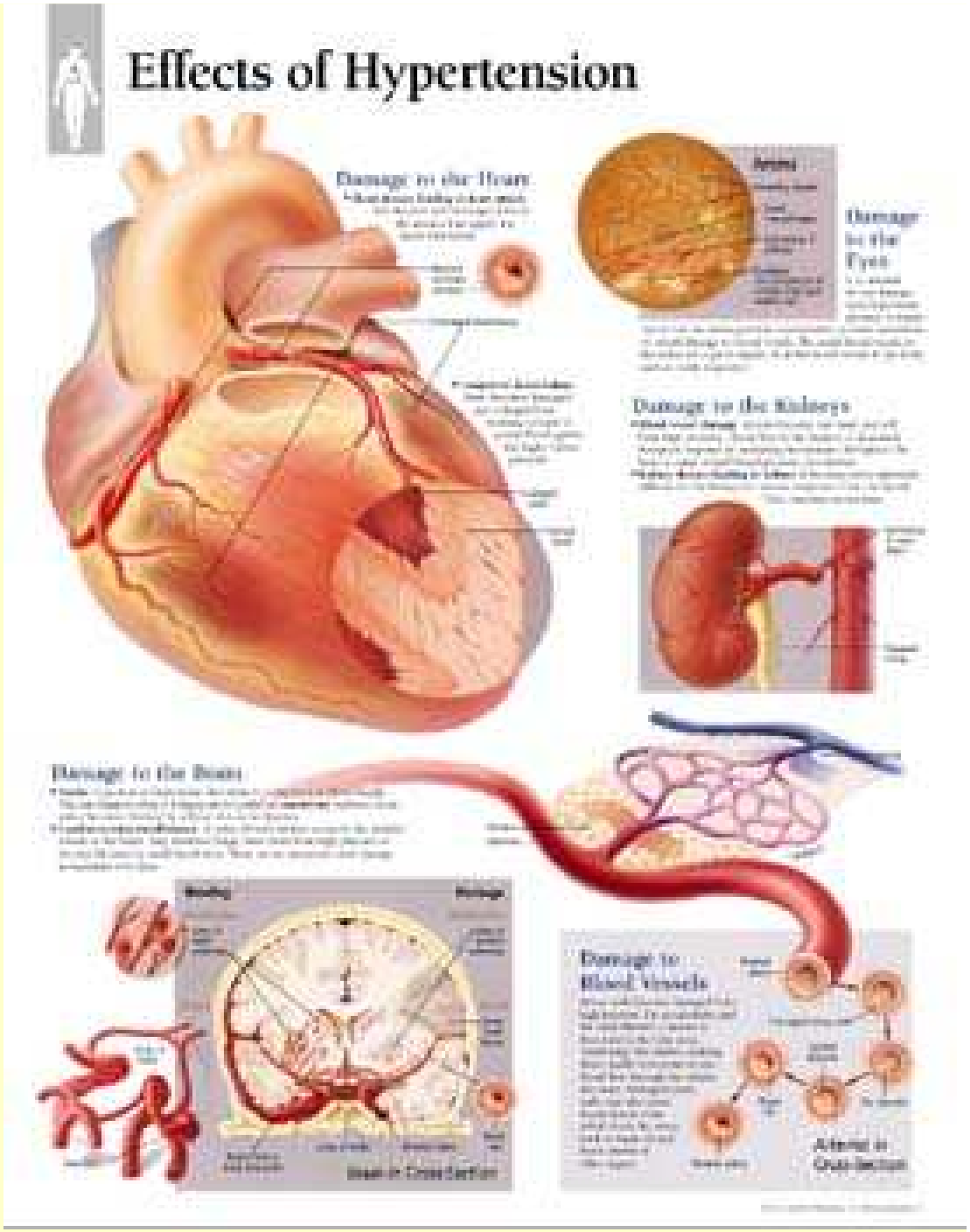
Definita come condizione di p.a > 140/90

In realtà la probabilità di insorgenza di malattie connesse con l'ipertensione è molto inferiore con p.a max <120 e p.a. min. <80



IPERTENSIONE ESSENZIALE

L’ipertensione è la causa principale di ictus, di alterazioni coronariche che sfociano nell’infarto. E’ la maggior causa di insufficienza cardiaca, renale e di aneurisma dissecante dell’aorta

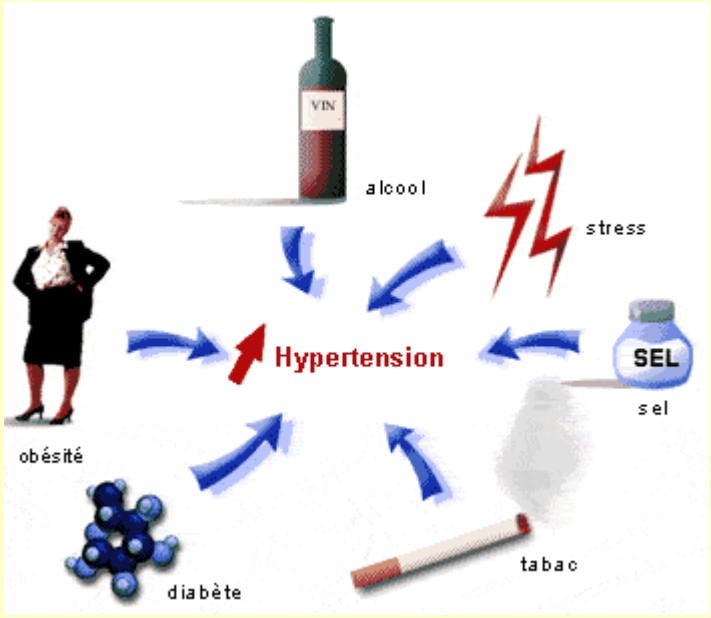


Ipertensione essenziale

Patologia multifattoriale – fattori di rischio

Panel1: Factors for assessing risk in hypertensive patients

Risk factor	
Age	Diabetes
Family history	Gender
Obesity	Serum cholesterol
Smoking	
Target organ damage	
Carotid atherosclerosis	Diabetic neuropathy
Hypertensive retinopathy	Left ventricular hypertrophy
Proteinuria	Renal failure
Symptomatic arterial disease	
Overt cardiovascular disease	
Angina	Coronary artery bypass graft
Heart failure	Myocardial infarction
Percutaneous transluminal coronary angioplasty	Stroke
Transient ischaemic attack	



P.A. : equilibrio tra gettata cardiaca e resistenze periferiche

Livelli di intervento per il controllo della p.a. e principali classi di farmaci

Riduzione gettata cardiaca : beta-bloccanti, nitrati

inibizione contrattilità miocardica

riduzione pressione di riempimento (ritorno venoso)

Riduzione resistenze periferiche: ACEi, calcio-antagonisti, alfa2-agonisti

inibizione contrattilità vasi di resistenza

inibizione sistemi che regolano resistenze periferiche (es. simpatico)

Riduzione volume circolante: diuretici

Linee guida:

Utilizzare farmaci quanto più privi di effetti collaterali

Utilizzare i dosaggi minimi e approccio polifarmacologico

Utilizzare farmaci con meccanismi d’azione diversi (potenziamento)

LIVELLI DI INTERVENTO

Non farmacologici

Esercizio fisico : esercizio costante isotonoco riduce p.a di 10 mmHg
(?riduzione vol ematico, catecol, e aumento atrial natriuretic factor ?)

Restrizione dietetica : riduzione assunzione sali a 5 g/die (equivale a 2 mg/die di sodio) abbassa p.a. max fino a 12 mm e p.a. min fino a 6 mmHg. Più sensibili soggetti >40a e soggetti con alta p.a.

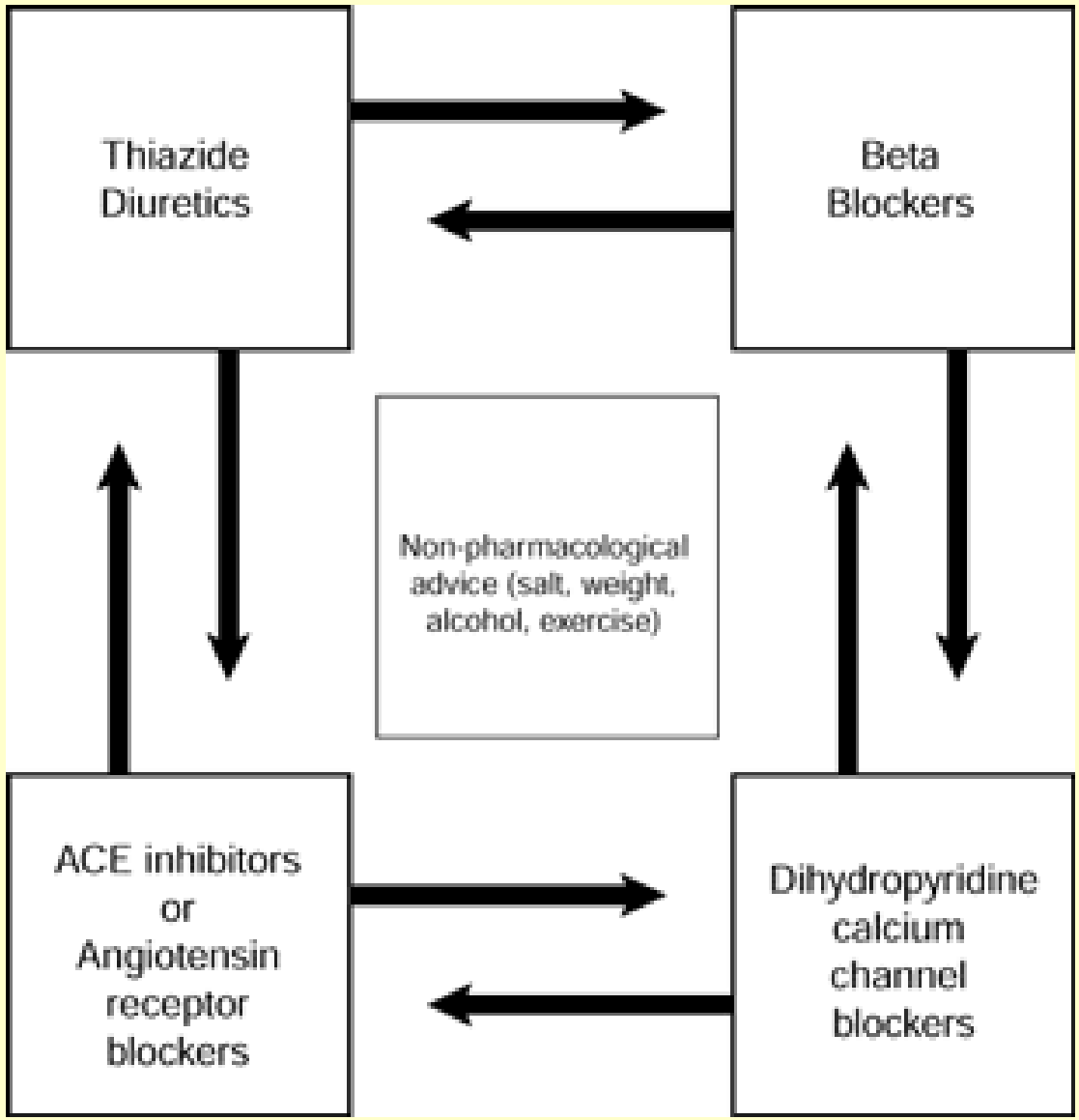
Riduzione peso. Alto tono simpatico ; insulina media riassorbimento di Na

Alcool : ridurre a < 30 ml/die

Rilassamento e biofeed-back : no dati statistici

Dieta potassica : efficace perché riduce aldosterone ? Utile in pz con modesta ipertensione, in genere associata con dieta iposodica ; no in pz con ACEi

Ipertensione: livelli di controllo terapeutico



Trattamenti farmacologici

Terapia multifarmacologica

Bassi dosaggi

Attenzione alla tossicità

Sequenza

Strumenti non farmacologici

ACEi o losartani

Diuretici

Beta-bloccanti, Ca-antagonisti (DHP) a lento rilascio

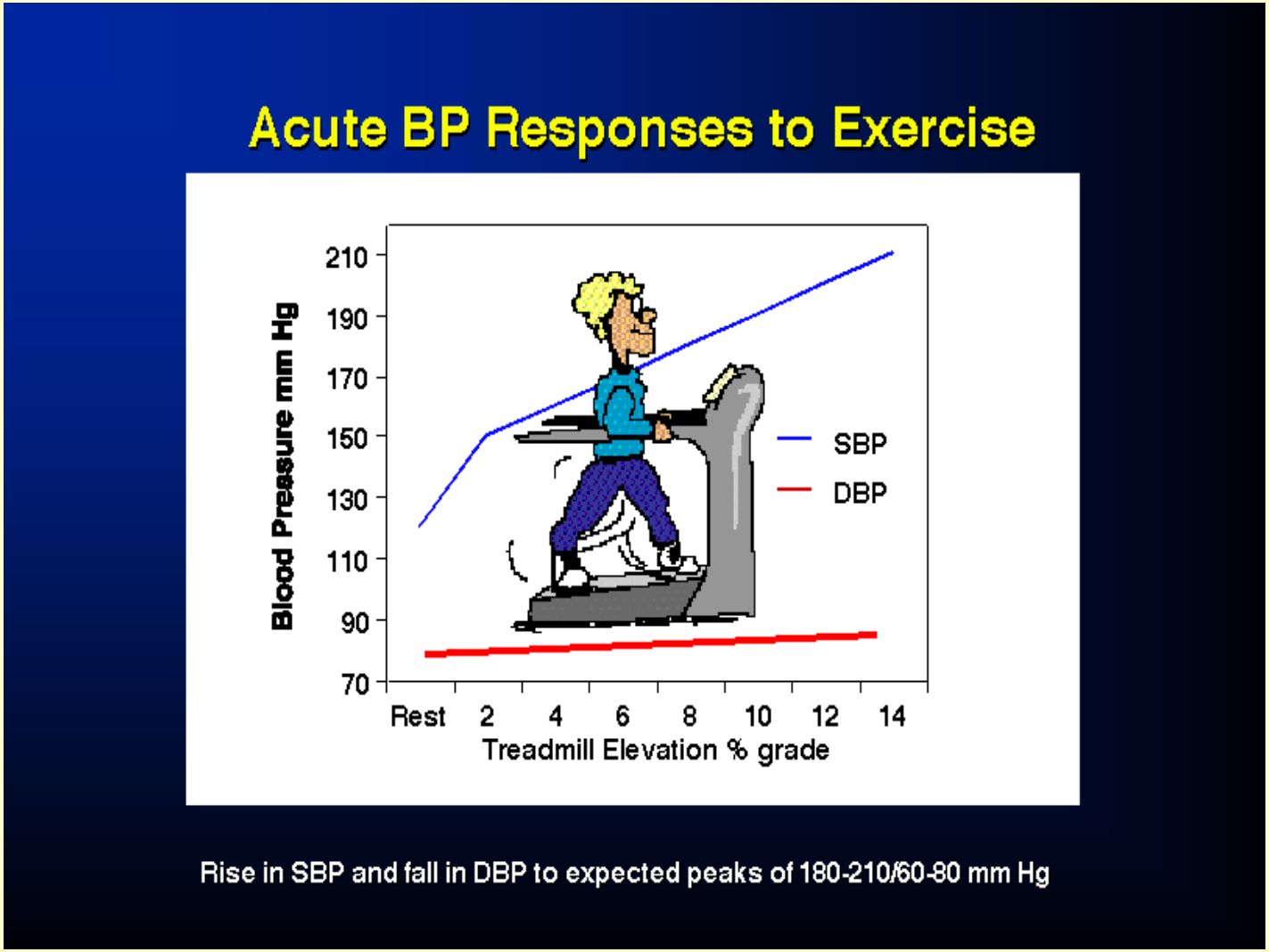
Alfa2-agonisti

Idralazina

Farmaci delle emergenze: alfa-bloccanti, nitroprussiato, minoxidil

Johns Hopkins Bayview Medical Center's exercise and hypertension slide presentation

http://www.jhbmc.jhu.edu/cardiology/Rehab/ExerciseHTN/index.htm



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Screening and Testing

BP should measured regularly in all persons > 3 years (Guide to Clinical Preventive Services)

Current opinion is that normotensive persons should be screened every 2 years

ACSM does not recommend mass exercise testing to determine future hypertension risk

Exercise testing before participation in moderate to vigorous exercise should follow usual risk stratification guidelines

Because hypertension clusters with other risk factors, many hypertensive individuals are likely candidates for exercise testing

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Exaggerated BP Responses to Exercise may predict future hypertension

Among normotensive men who had an exercise test between 1971-1982, those who developed hypertension in 1986 were 2.4 times more likely to have had an exaggerated BP response to exercise
Exaggerated BP response increased future hypertension risk by 300% after adjusting for all other risk factors
Exaggerated BP was change from rest in SBP>60 mm Hg at 6 METS; SBP> 70 mm Hg at 8 METS; DBP> 10 mm Hg at any workload
J Clin Epidemiol 51(1): 1998
Subjects in CARDIA study with exaggerated exercise BP response at baseline were 1.70 times more likely to develop hypertension 5 years later

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Lifestyle Changes for Hypertension and Cardiovascular Risk

Reduce excess body weight by caloric restriction and exercise

Reduce dietary sodium to □ 2.4 g

Maintain adequate dietary intake of potassium, calcium, and magnesium

Limit daily alcohol consumption to < 2 oz of whiskey, 10 oz wine, 24 oz beer

Exercise moderately each day

Engage in relaxation techniques

Cessation of smoking

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Possible Mechanisms of BP Reduction with Exercise Training

Lower cardiac output and peripheral vascular resistance at rest and at any given submaximal level of work

- Decreased HR
- Decreased sympathetic and increased parasympathetic tone

Reduction in blood catecholamine levels and plasma renin activity

Reduction in central fat independent of changes in body weight or body mass index

Altered renal function to increase elimination of sodium leading to reduce fluid volume

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NIH Consensus Development Conference on Physical Activity and Cardiovascular Health (1995)

- Review of 47 studies of endurance training and hypertension

- 70% of exercise groups decreased SBP by an average of 10.5 mm Hg from 154 mm Hg

- 78% decreased DBP by an average of 8.6 mm Hg from 98 mm Hg
- Only one study showed increased BP with exercise

- Beneficial responses are 80 times more frequent than negative responses and 3 times more frequent as equivocal responses

Johns Hopkins Bayview Medical Center's exercise and hypertension slide presentation

http://www.jhbmc.jhu.edu/cardiology/Rehab/ExerciseHTN/index.htm

Exercise Guidelines

No special guidelines for mild to moderate hypertension

ACSM recommends endurance training for mild hypertension

- 3-5 days/week
- 20-60 minutes
- 50-85% of maximal oxygen uptake

ACSM also says that lower intensities may be required until BP control is achieved although no specific guidelines exist

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Resistive Training

Resistive exercise produces the most striking increases in BP

Because resistive exercise also results in less of a HR increase compared with aerobic exercise the total myocardial burden may be less than aerobic exercise

Combined training (weight and aerobic exercise) has been shown to reduce both SBP and DBP by as much as 13 mm Hg each

Combined Aerobic and Resistive Training and Mild Hypertension

Kelemen, Effron, Valenti, Stewart: JAMA 1990:263:2766-2771

Johns Hopkins Bayview Medical Center's exercise and hypertension slide presentation

http://www.jhbmc.jhu.edu/cardiology/Rehab/ExerciseHTN/index.htm

Exercise and Hypertension Summary

Hypertension is a major risk factor for CVD.

Exercise is a key component in the prevention and treatment of hypertension.

Exercise training can be expected to reduce SBP and DBP by 7-10 mm Hg.

Some studies show that even greater benefits are possible.

Exercise also has a favorable effect on other CVD risk factors like lipids and diabetes.

Medical screening for exercise participation to predict hypertension is not necessary. Persons with known hypertension should follow usual risk stratification guidelines for exercise testing.

Exercise Guidance in Hypertension
Kerry J. Stewart, EdD
THE PHYSICIAN AND SPORTSMEDICINE - VOL 28 - NO. 10 - OCTOBER 2000

Exercise Guidelines

Aerobic exercise. For mild hypertension, the American College of Sports Medicine (ACSM) (6) recommends 20 to 60 minutes of aerobic exercise 3 to 5 days per week, at 50% to 85% of maximal oxygen uptake. For patients with stage 2 or stage 3 hypertension, exercise should be at 40% to 70% of maximal oxygen uptake after patients begin pharmacologic therapy.

Resistance exercise. One concern about resistance training has been that it produces exaggerated BP responses. While an acute bout of resistance exercise does result in greater increases in BP compared with aerobic exercise, heart rate does not increase as much. As such, the rate-pressure product, which represents myocardial oxygen demand, may be lower with resistance versus aerobic exercise (7,8). A recent position paper of the American Heart Association (9) recommends mild-to-moderate resistance exercise, at 30% to 60% of maximal effort, for improving muscle strength and endurance, preventing and managing diverse chronic medical conditions, modifying coronary risk factors including hypertension, and enhancing psychological well-being.

EXERCISE MAY NOT BE GOOD ENOUGH TO REDUCE MILD HYPERTENSION IN OLDER PEOPLE, HOPKINS EXPERTS SAY

Reductions in fat and increases in muscle key indicators of who will benefit most

……. Previous studies, says Stewart, who led the new study, examined mostly younger men in whom high blood pressure has different characteristics and causes than are the case in older people. **Hypertension in younger adults is often due to a high cardiac output** when at rest and during exercise, where the heart beats faster than it has to, he adds. However, hypertension **in mature adults** results from changes in the walls of the large arteries that carry blood throughout the body. These blood vessels become less elastic or flexible, a condition known as **arterial stiffening**, and this causes blood pressure to rise

EXERCISE MAY NOT BE GOOD ENOUGH TO REDUCE MILD HYPERTENSION IN OLDER PEOPLE, HOPKINS EXPERTS SAY

Reductions in fat and increases in muscle key indicators of who will benefit most

…….Upon closer examination, the Johns Hopkins team found that **people most likely to decrease both systolic and diastolic blood pressure also were those who lost the most body fat, particularly abdominal fat, and gained the most muscle. These** changes in body composition were more closely related to reductions in blood pressure than improvements in fitness. Overall, results for both improvements in fitness and body composition were nearly identical for men and women…….

……."Older people should still be encouraged to exercise because it produces numerous health benefits, but their expectations need to be modified about how much good the exercise alone will do for reducing systolic blood pressure. They may also need to understand it could take much more time for them to reach blood pressure goals, and it may require more intensive exercise programs. Although participants followed the prescribed program according to guidelines without fail, it does not seem to be enough for full blood pressure control in older people……..