Azienda Ospedaliera
S.Antonio Abate di Gallarate

Dipartimento
Medicina Interna
Riabilitazione Cardiologica

GIOVANNI VINCENZO GAUDIO

Presidente Nazionale

Italian Council of Cardiology Practice
Collegio Federativo Cardiologia

Pre ipertensione e Vascular aging

Sistema Sanitario Regione Lombardia

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PreHT, HT & CMS 2016

The 4th International Conference on
PreHypertension, Hypertension & Cardio Metabolic Syndrome
3-6 March, 2016, Venice, Italy

re-Levels of CV Risk Factors – Boosting Risk of Events and Deciding Who Should be Treated
Benefits of Achieving Optimal Risk Factors Level – When, How and with What?
Arterial Properties, Evaluation and Treatment in Metabolic Syndrome
Cardiac Markers of Pre-Clinical Disease in Metabolic Syndrome Patients
PreHypertension, Prediabetes and Dyslipidemia – Estimation of Risk and Therapeutic Approach

ESH European Society of Hypertension

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Italian Council of Cardiology Practice

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PRE IPERTENSIONE

LE DOMANDE APERTE:

? CRITERI DI DIAGNOSI SONO ATTUALI
? QUANDO INIZIA
? QUAL E' LA PROGRESSIONE DI MALATTIA
? QUALI PROVVEDIMENTI ADOTTARE
? E' CORRELATA CON VASCULAR AGING

Schema di Intervento farmacologico Sulla stratificazione del rischio CV

Other risk factors, asymptomatic organ damage or disease	High normal SBP 130–139 or DBP 85–89
No other RF	
1–2 RF	Low risk
≥3 RF	Low to Moderate risk
OD, CKD stage 3 or diabetes	Moderate to high risk
Symptomatic CVD, CKD stage ≥4 or diabetes with OD/RFs	Very high risk

BP = blood pressure; CKD = chronic kidney disease; CV = cardiovascular; CVD = ca
OD = organ damage; RF = risk factor; SBP = systolic blood pressure.

MONOTERAPIA

TERAPIA DI COMBINAZIONE

In accordo con la carta del rischio europea SCORE (espressi in eventi fatali).

<4%

4-5 %

5-8 %

>8 %

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High normal
SBP 130–139
or DBP 85–89

Risk factors
Male sex
Age (men ≥55 years; women ≥65 years)
Smoking
Dyslipidaemia
Total cholesterol >4.9 mmol/L (190 mg/dL), and/or
Low-density lipoprotein cholesterol >3.0 mmol/L (115 mg/dL) and/or
High-density lipoprotein cholesterol: men <1.0 mmol/L (40 mg/dL), women <1.2 mmol/L (46 mg/dL), and/or
Triglycerides >1.7 mmol/L (150 mg/dL)
Fasting plasma glucose 5.6–6.9 mmol/L (102–125 mg/dL)
Abnormal glucose tolerance test
Obesity [BMI ≥30 kg/m^2 (height^2)]
Abdominal obesity (waist circumference: men ≥102 cm; women ≥88 cm) (in Caucasians)
Family history of premature CVD (men aged <55 years; women aged <65 years)

4-5 %

<4%

Asymptomatic organ damage
Pulse pressure (in the elderly) ≥60 mmHg
Electrocardiographic LVH (Sokolow–Lyon index >3.5 mV; RaVL >1.1 mV; Cornell voltage duration product >244 mV*ms), or
Echocardiographic LVH [LVM index: men >115 g/m^2; women >95 g/m^2 (BSA)][a]
Carotid wall thickening (IMT >0.9 mm) or plaque
Carotid–femoral PWV >10 m/s
Ankle-brachial index <0.9
CKD with eGFR 30–60 ml/min/1.73 m^2 (BSA)
Microalbuminuria (30–300 mg/24 h), or albumin–creatinine ratio (30–300 mg/g; 3.4–34 mg/mmol) (preferentially on morning spot urine)
Diabetes mellitus
Fasting plasma glucose ≥7.0 mmol/L (126 mg/dL) on two repeated measurements, and/or
HbA_{1c} >7% (53 mmol/mol), and/or
Post-load plasma glucose >11.0 mmol/L (198 mg/dL)

5-8 %

Established CV or renal disease
Cerebrovascular disease: ischaemic stroke; cerebral haemorrhage; transient ischaemic attack
CHD: myocardial infarction; angina; myocardial revascularization with PCI or CABG
Heart failure, including heart failure with preserved EF
Symptomatic lower extremities peripheral artery disease
CKD with eGFR <30 mL/min/1.73m^2 (BSA); proteinuria (>300 mg/24 h).
Advanced retinopathy: haemorrhages or exudates, papilloedema

>8 %

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? Quali indicatori moderni utilizzare per quantificare il RCV

- Albumin:Creat. ratio >200 mg/g
- eGFR >60 mL/min per 1.73 m²
- LVH (by Echo or ECG)
- Metabolic Syndrome
- Framingham Risk Score >20%
- DM / Prediabetes / impaired GTT
- HF (Systolic or Diastolic)
- CHD/Post MI/PAD/CVA/TIA/AAA

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? Quando inizia il problema

PREIPERTENSIONE E IPERTENSIONE NEGLI ADOLESCENTI

Vai alla fonte

Da indagini recenti sappiamo che l'**Ipertensione in età pediatrica è nettamente sottodiagnosticata** e si accompagna anche a dubbi ancora irrisolti: il riscontro di un valore elevato di pressione in un adolescente quali ripercussioni avrà sul suo futuro? Per chiarire la questione alcuni ricercatori hanno esaminato il persistere di ipertensione (sistolica e/o diastolica ≥ 95° centile) o di preipertensione (sistolica e/o diastolica ≥ 90° centile oppure ≥ 120/80) in 8533 adolescenti la cui pressione era stata misurata all'età di 13, 14 o 15 anni e ricontrollata dopo 2 e 4 anni. All'inizio il 67% dei maschi e il 77% delle femmine risultava normoteso; la maggior parte di loro è rimasta normotesa dopo 2 anni, ma il 31% dei primi e il 12% delle seconde è diventato preiperteso e rispettivamente il 5% e il 4% sono diventati ipertesi. Tra i maschi e le femmine inizialmente classificati come preipertesi (21% e 13%, rispettivamente), il 50% e il 24% sono rimasti in questa fascia di valori dopo 2 anni, mentre il 14% e il 12% è diventato iperteso. Tra quelli inizialmente già ipertesi (11% e 10%), il 31% e il 26% sono rimasti ipertesi mentre il 47% e il 26% sono "retrocessi" a preipertesi. Dopo 4 anni i cambiamenti sono stati simili a quelli registrati dopo 2 anni, e si è vista un'associazione stretta tra aumento della pressione sistolica e aumento di peso corporeo.

Il 7% degli adolescenti pre ipertesi diventa iperteso

EFFECT OF INSULIN RESISTANCE IN DETERMINING PREHYPERTENSION AND HYPERTENSION RISK AND BLOOD PRESSURE VALUES IN PAEDIATRIC AGE: 1D.03

Pieruzzi, F.1; Brambilla, P.2; Antolini, L.1; Giussani, M.3; Galbiati, S.1; Mastriani, S.1; Stella, A.1; Genovesi, S

Objective: Hypertension risk is increased in childhood obesity, but it is not clear whether it is linked to obesity itself, fat distribution or insulin resistance. Moreover the role of insulin resistance in determining hypertension risk in normal weight children has still to be ascertained. Aim of the study was to evaluate, in children of different weight categories, the effect of body mass index (BMI), Homa-index (as estimate of insulin resistance) and waist- to-height ratio (WtHr, as estimate of fat distribution) on pre-hypertension and hypertension risk. The relative contribution of BMI, WtHr, and HOMA index to determine left ventricular mass (LVM) was also evaluated.

Design and Method: We studied 377 children (age 6-16 years) referred for hypertension (n = 289) or positive family history of cardiovascular disease (n = 88). Hypertension and pre-hypertension were ascertained according to the National High Blood Pressure Education Program Working Group on High Blood Pressure in Children and Adolescents and weight class was established according to International Obesity Task Force classification. Homa-index was calculated as plasma insulin (μU/ml) × plasma glucose (mmol/L)/22.5 and left ventricular mass was assessed according to American Society of Echocardiography and standardized to height ($m^{2.7}$).

Results: Ninety-four children (24.9%) were normal weight, 133 (35.3%) were overweight and 150 (39.8%) were obese. In both genders, frequency of pre-hypertension and hypertension was higher in overweight subjects (18.0% and 31.6%, respectively) and obese (22.5% and 39.7%) compared to normal weight (11.7% and 23.4%); $p<0.05$. Left ventricular mass tended to increase together with weight class ($p<0.05$). Multivariate logistic regression models showed an independent significant effect of Homa-index, in addition to BMI (Z-score) and WtHr effect, on the risk of pre-hypertension and hypertension and on continuous systolic blood pressure values, while only BMI (Z-score) and WtHr had an effect on LVM.

Conclusions: Our data strongly suggest that insulin resistance adds an impact to the predictive power of BMI and WtHr in determining hypertension risk and blood pressure values in paediatric age. This finding is evident not only in hypertensive and/or obese children but also in normotensive and/or normal weight peers.

Journal of Hypertension: June 2011 - Volume 29 - Issue - p e13–e14

PRE-HYPERTENSION IS COMMON IN YOUNG SUBJECT

Kitai, E.1; Vinker, S.1; Halperin, L.2; Meidan, A.1; Grossman, E
Dept. Family Medicine Leumit HMO Sackler School of Medicine
Tel-Aviv University, Tel-Hashomer, Israel

Objectives Recently the JNC7 introduced the term pre-hypertension for systolic blood pressure (BP) levels of 120–139 mmHg and diastolic BP levels of 80–89 mmHg. Little is known on the prevalence of this entity in the general population We assessed the rate of BP records and the prevalence of pre-hypertension in a large group of people with no records of hypertension.

Methods From the database of one of the HMOs in Israel we retrieved the recorded BP levels of all members above the age 18, who did not have in their records a diagnosis of hypertension nor use of antihypertensive medications.

Results Out of 346,799 only 141.356 (40.8%) subjects have their BP levels recorded in the last two years. BP recordings were higher in females than in males (45.1% vs. 36.3%) and were higher in elderly subjects than in young subjects (56% in subjects age 66–75 vs. 32% in subjects age 18–25). The prevalence of pre-hypertension according to age and gender is depicted in Table 1.

Pre-hypertension was observed in 57% of the population and was more prevalent in men than in women across all ages (66.1% vs. 49.8%).

Conclusion Among young people, BP regular measurement rate at primary care clinics is low, even though the prevalence of pre-hypertension is high. Thus, more emphasis should be given to routine BP measurements in all age groups in primary care clinics.

Journal of Hypertension:2004

PREVALENCE OF PRE-HYPERTENSION AND UNDETECTED HYPERTENSION IN DELHI, INDIA.

Shivashankar, Roopa; Kondal, Dimple; VS, Ajay; More

Journal of Hypertension. 30():e134, September 2012.

Objective: To measure the prevalence of pre-hypertension (PHT) and undetected hypertension (UHT) among adults aged >=20 years and assess their association with other cardiovascular (CVD) risk factors.

Design and Methods: The Centre for cAdiometabolic Risk Reduction in South Asia (CARRS) study conducted household surveys, using multi-stage cluster random samples, stratified by gender in three cities in South Asia (Delhi, Chennai, Karachi). We analysed data from 4337 Delhi residents. Tools included structured questionnaire, physical measurements, and fasting blood samples. Blood pressure (BP) was measured using automated BP monitors. Hypertension (HT) was defined as self-reported hypertension on treatment or SBP >=140mmHg and/or DBP >=90mmHg, and PHT included SBP 120-139mmHg and/or DBP 80-89mmHg.

Results: The prevalence of HT was 42.5 % (95% CI - 41.0-44.0), comprising self-reported HT 16.3 % (15.2-17.4) and UHT 26.2 % (24.7-27.4). The prevalence of PHT was 31.3 % (30.0 -32.7).PHT and UHT prevalence varied from 29.8% to 31.9%, and 25.6% to 24.2%, respectively, in lowest and highest education levels (p, 0.134). Compared to normotensive group, PHT and UHT groups had higher proportions of ages >=45 years (28, 0%, 40.8%, 50.1%, respectively), males (9.4%, 35.1%, 32.6%), smokers (11.2%, 16.5%, 19.2%), alcohol consumers (10.4%, 20.2%, 25.3%), and had higher mean BMI (23.7, 25.2, 26.4 kg/m2), mean FPG (103.2, 110.1, 117.0 mg/dl), and mean serum LDLc (100.3, 106.7, 111.8 mg/dl).

Conclusion: Three-fourth of Delhi's adult population, across education levels, either had HT or PHT and 61% of HT was undiagnosed. Improving detection of HT and PHT can catalyse implementation of interventions to prevent CVD.

PREVALENCE AND CARDIOVASCULAR RISK FACTOR PROFILE OF PRE-HYPERTENSION AMONG YOUNG ADULTS: RESULTS OF A LARGE-SCALE POPULATION STUDY: P1.392

Sharabi, Y.; Grotto, I.; Huerta, M.; More

Journal of Hypertension. 22():S130, June 2004.

	Men			Women		
	Normal	PreHTN	HTN	Normal	PreHTN	HTN
BMI	24.4 : 3.4*	25.8 : 3.6	27.9 : 4.1**	23 : 3.5*	24.9 : 4.5	28.1 : 6**
Glucose	92 : 15*	95 : 20	99 : 25**	87 : 11*	91 : 12	97 : 28**
Cholesterol	190 : 50*	198 : 40	211 : 41**	192 : 35*	201 : 37	209 : 38**
Triglycerides	119 : 83*	140 : 104	174 : 180**	94 : 55*	109 : 69	136 : 110**
Smokers	32%	34%	31%**	28%	27%	30%
Sedentary LS	75%	77%	77%	54%	81%	84%

HTN=Hypertension, PreHTN=Prehypertension, BMI=Body mass index, LS=Life style

* statistically significant difference (p<0.01) between Normal and PreHTN

** statistically significant difference (p<0.01) between HTN and PreHTN

Conclusion: The prevalence of pre-hypertension is high and is associated with poorer cardiovascular-metabolic profile. Whether life style modification can alter the progression to hypertension remains to be shown.

Progression of pre-hypertension, stage 1 and 2 hypertension (JNC 7): a population-based study in Keelung, Taiwan

(Keelung Community-based Integrated Screening No. 9)

Chiu, Yueh-Hsia; Wu, Shiao-Chi; Tseng, Chuen-Den; More

Journal of Hypertension. 24(5):821-828, May 2006.

Objective: To investigate the prevalence and progression of, and identify risk factors for, pre-hypertension, stage 1 and 2 hypertension in a population-based study.

Design: A prospective cohort study.

Setting: An integrated community-based multiple screening program in Keelung, Taiwan.

Participants: A total of 67 011 individuals aged 20–79 years between 1999 and 2003 were included. Of these, 22 111 re-attended, yielding 53 689 repeated recordings of blood pressure, including movement between normal and pre-hypertension and progression from pre-hypertension to stage 1 or stage 2 hypertension.

Main outcome measures: Blood pressure was defined and classified according to the JNC 7 Report as normal, pre-hypertension, stage 1, and stage 2 hypertension.

Results: Below 50 years of age, males had a higher progression rate, particularly from normal to pre-hypertension, than females. Annual regression rates from pre-hypertension to normal were higher in the young age group than in the old age group, particularly for females. Factors associated with the occurrence of pre-hypertension were old age, male gender, high waist circumference, abnormal blood lipids, smoking, chewing betel nuts, lack of exercise, and having parents with hypertension. Factors associated with regression from pre-hypertension to normal were body mass index, fasting glucose, high-density lipoprotein level, smoking, and parents with hypertension. Progression from pre-hypertension to stage 1 hypertension was positively related to male gender, higher waist circumference, and having parents with hypertension.

Conclusions: The rates of progression and regression of hypertension vary with age and gender, anthropometric and biochemical measurements, and family history.

AUTONOMIC BALANCE AND HEMODYNAMIC PATTERNS IN PRE-HYPERTENSION: PP.32.266

González, S; Forcada, P; Chiabaut Svane, J; More

Journal of Hypertension. 28():e529-e530, June 2010.

Introduction: Autonomic imbalance and hemodynamic disturbances has been described in pre-hypertensive patients (PHT-JNC-VII), with increments in sympathetic drive, cardiac index (CI) and vascular resistances1. However, these autonomic alterations aren't present in all of PHTs, and different status of autonomic balance (AB) could be coexisting with different hemodynamic patterns (HP), as distinct stages in the evolution to sustained HT.

Objectives: a) To evaluate AB and HP in PHTs; and b) To asses different association patterns between them.

Methods: Prospective study. We included 70 patients into three different groups; a) 40 PHTs (131.4 +/- 5.9/84.2 +/- 5.1 mm Hg), b) 10 normotensives (NT),(112.4 +/- 5.3/73.4 +/- 4.9 mm Hg), and c) 20 mild HTs (148.8 +/- 13.5/93.6 +/- 7.1 mm Hg), all of them without treatment. AB was determined by the expiration/inspiration index (E/I) in one second/ECG; and the different HP were evaluated by determination of CI, systemic vascular resistance index (SVRI) and cardiac work index (CWI) with impedance cardiography. A cut off point of 1.25 for E/I was applied Results: a) Abnormal AB (E/I<1.25) was detected in 56.6% of PHT, 20% of NT and 37.5% of HTs. b) In PHTs, abnormal AB was related with an HP characterized for increased SVR, while subjects with normal AB presented an hyper-dynamic HP, with low SVR. (table), c) HP of PHTs with altered AB was similar to HT patients

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THE STUDY ON LIFESTYLE-INTERVENTION IN SUBJECTS WITH IMPAIRED FASTING GLUCOSE AND PRE-HYPERTENSION A 5 YEARS RANDOMISED CLINICAL TRIAL (2 YEARS PRELIMINARY RESULTS): PP.2.40

Gasimov, Z. Journal of Hypertension. 29():e159, June 2011.

The study on lifestyle-intervention in subjects with impaired fasting glucose and pre-hypertension a 5 years randomised clinical trial designed to evaluate the prevalence of prehypertension, impaired fasting glucose and the cardiovascular risk factors and the effect of a combined diet and physical activity intervention on impaired fasting glucose and pre-hypertension in a cohort at increased risk for developing type 2 diabetes and AH. Preliminary screening among pedagogical staff from State Pedagogical University, conducted between March 2008 and October 2008. In total, 265 subjects (women) with an increased risk of having disturbances in glucose homeostasis (i.e. age > 40 years and BMI > 25 kg/m^2 or a family history of diabetes) underwent a first investigation. Subjects completed a detailed questionnaire and underwent physical examination, and blood samples were drawn after a 8-hour fast. Impaired fasting glucose was defined as a fasting glucose level more than 100mg/dl.

Pre-hypertension was defined as a systolic blood pressure of 120 to 139 mm Hg, and/or a diastolic blood pressure of 80 to 89 mm Hg. Impaired fasting glucose was detected in 94 subjects (35.5%), 9 type 2 diabetes (type 2DM, 3.4%),Prehypertension was detected in 102 women(38.5%). Both increasing age and BMI were strongly related to the prevalence of pre-hypertension and diabetes. During the 2-year follow-up, 2.6% of the total population (1.3% per year, 95% CI 0.9-1.8%) developed diabetes. Of those with IFG at baseline, 6.4% (3.2% per year, 95% CI 1.6-5.2%) progressed to diabetes, but only 1.2% (0.6% per year, 95% CI 0.3-1.0%) of normoglycemic people did so. Other significant predictors of progression to diabetes were higher waist-hip ratio (WHR), triglyceride and non HDL levels.

Prehypertension and the risk for cardiovascular disease in the Japanese general population: the Jichi Medical School Cohort Study

Ishikawa, Yukiko; Ishikawa, Joji; Ishikawa, Shizukiyo; More

Journal of Hypertension. 28(8):1630-1637, August 2010.

Background: Prehypertension is associated with an increased risk of the development of hypertension and subsequent cardiovascular disease. However, it is unclear whether the increased risk of cardiovascular disease associated with prehypertension varies by duration of follow-up (i.e., the first 5 years vs. second 5 years) or varies between nonelderly and elderly individuals.

Methods: We enrolled 11 000 community dwelling persons (6739 women and 4261 men, aged 18–90 years) from the Japanese general population, followed them for an average of 10.7 ± 2.4 years (117 517 person-years) and evaluated the incidence of cardiovascular events (including both stroke and myocardial infarction).

Results: In the full cohort, prehypertension was associated with a 45% higher risk of cardiovascular events than normal blood pressure after adjusting for traditional cardiovascular risk factors (hazard ratio = 1.45, P = 0.03). The risk of cardiovascular events with prehypertension during the second 5-year period was elevated in the nonelderly subgroup (<65 years) (hazard ratio = 2.13, P = 0.01), but not in the elderly subgroup (≥65 years) (hazard ratio = 0.93, P = 0.82) (P = 0.054 for the difference in hazard ratio). The elevated risk with prehypertension during the first 5-year period was not significant in either the nonelderly (hazard ratio = 1.60, P = 0.36) or elderly (hazard ratio = 1.19, P = 0.63) group. However, the risks with prehypertension were not statistically different between the first and second 5-year period.

Conclusion: Prehypertension is associated with an increased 10-year risk of cardiovascular disease; the provocative finding that this risk may be especially elevated during the second 5-year period in the nonelderly requires confirmation in a larger cohort.

DEFICIENCY OF THE CARDIORENAL PROTECTIVE HORMONE BNP IN EARLY STAGES OF HYPERTENSION: 2C.01

Cataliotti, A; Macheret, F; McKei, PM; More

Journal of Hypertension. 28():e21, June 2010.

The objective of the current study was to assess the relationship between hypertension (HTN) and 3 distinct circulating forms of B-type Natriuretic Peptide (BNP), including mature active BNP1-32 determined by Shionogi and by Biosite, non-active NT-proBNP1-76 by Roche, and, for the first time, the precursor proBNP1-108 by BioRad. We also evaluated their relationship with cardiac hypertrophy and renal function. BNP forms were measured in 2,036 randomly selected adults from Olmsted County, MN (age > 45). There were 571 normotensives, 755 with pre-HTN, 492 with stage 1 HTN, and 218 with stage 2 HTN. All forms of BNP increased with age, were lower in male as compared with female and were inversely related with BMI. Average levels of all BNP forms were higher in subjects with left ventricular hypertrophy (LVH) and increased with the severity of HTN and with reduced renal function. However, in a multivariate model adjusted for age, gender, BMI, LVH, and renal function (Table 1), BNP1-32 (both assays) was lower in early stages of HTN (pre-HTN and stage 1 HTN) and elevated in stage 2 HTN (by Biosite) as compared to normotensives. Similarly, NT-proBNP1-76 was lower in the pre-HTN and higher in stage 2 HTN as compare with the normotensives. More importantly, proBNP1-108 was lower in stage 1 HTN and did not increase in stage 2 HTN. The lack of elevation of the precursor proBNP1-108 demonstrates impaired BNP production in HTN. These results obtained from a large, well characterized community sample confirm and extend our previous observation made in a small group of hypertensive subjects and support the hypothesis a deficiency state of the cardiorenal protective natriuretic peptide system may play a role in the development of HTN.

Project: Gaining health ,make healthy choices easier 2013

GVGaudio,R.Broggi,G.Carabelli,L.Rolih,R.Piccoli.I.franzoni .E.Sarli .A.Macchi

PreHT 2014

The 3rd International Conference on
PreHypertension, Hypertension &
Cardio Metabolic Syndrome
27-30 March, 2014, Warsaw, Poland

Objective:

Early identification of patients at high cardio-metabolic risk due to the presence of unrecognized pre- hypertension and / or pre- diabetes.

We studied two populations

1) subjects aged 18 and 35 years

2) women of all ages at menopause for 3 to 6 months

Tot. 31 (28 Females 3 Men)

Project: Gaining health ,make healthy choices easier 2013

GVGaudio,R.Broggi,G.Carabelli,L.Rolih,R.Piccoli.I.franzoni .E.Sarli .A.Macchi

Values for diagnosis of Pre Hypertension or/ Pre diabetes

follow the ESC_ESH GUIDELINES 2013

Controlled Parameters:

Height,Weight,BMI,Abdominal Circumference,Age Sex, SBP, DBP PP,Heart rate at rest,Ecg ,FPG,Bioimpedentiometry

All patients are visited by MD Specialist in :
Internal Medicine, Dietician,Cardiologist,Psycologist

Project: Gaining health ,make healthy choices easier 2013

GVGaudio,R.Broggi,G.Carabelli,L.Rolih,R.Piccoli.I.franzoni .E.Sarli .A.Macchi

Psychiatric Research Unit
WHO Collaborating Centre in Mental Health

WHO (Five) Well-Being Index (1998 version)

Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks. Notice that higher numbers mean better well-being.

Example: If you have felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3 in the upper right corner.

	Over the last two weeks	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
1	I have felt cheerful and in good spirits	☐5	☐4	☐3	☐2	☐1	☐0
2	I have felt calm and relaxed	☐5	☐4	☐3	☐2	☐1	☐0
3	I have felt active and vigorous	☐5	☐4	☐3	☐2	☐1	☐0
4	I woke up feeling fresh and rested	☐5	☐4	☐3	☐2	☐1	☐0
5	My daily life has been filled with things that interest me	☐5	☐4	☐3	☐2	☐1	☐0

Scoring:

The raw score is calculated by totalling the figures of the five answers. The raw score ranges from 0 to 25, 0 representing worst possible and 25 representing best possible quality of life.

To obtain a percentage score ranging from 0 to 100, the raw score is multiplied by 4. A percentage score of 0 represents worst possible, whereas a score of 100 represents best possible quality of life.

Project: Gaining health ,make healthy choices easier 2013

GVGaudio,R.Broggi,G.Carabelli,L.Rolih,R.Piccoli.I.franzoni .E.Sarli .A.Macchi

Conclusions

All subjects with hypertension and / or overt diabetes were referred to the study for possible presence of organ damage and placed in dietary therapy / behavioral and pharmacological .

All subjects pre-diabetic and / or pre hypertension have been established dietary -behavioral therapy and will be reassessed in 12 months

Three subjects with very low WHO 5 score was assessed psychotherapy

In five subjects with low who5 score has been recommended psychotherapy.

Both subjects with pre- diabetes with frank diabetes and / or hypertension showed values of WHO 5 score lower.

For the first time we have shown that even in the very early states of cardiometabolic abnormalities such as prehypertension or prediabetes state of well-being proved already changed and could lead to functional alterations of SNS able to change both the insulin resistance that the hemodynamic response .

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Schema di Intervento farmacologico Sulla stratificazione del rischio CV

TERAPIA

Other risk factors, asymptomatic organ damage or disease	High normal SBP 130–139 or DBP 85–89
No other RF	
1–2 RF	Low risk
≥3 RF	Low to Moderate risk
OD, CKD stage 3 or diabetes	Moderate to high risk
Symptomatic CVD, CKD stage ≥4 or diabetes with OD/RFs	Very high risk

BP = blood pressure; CKD = chronic kidney disease; CV = cardiovascular; CVD = ca
OD = organ damage; RF = risk factor; SBP = systolic blood pressure.

In accordo con la carta del rischio europea SCORE (espressi in eventi fatali).

<4%
4-5 %
5-8 %
>8 %

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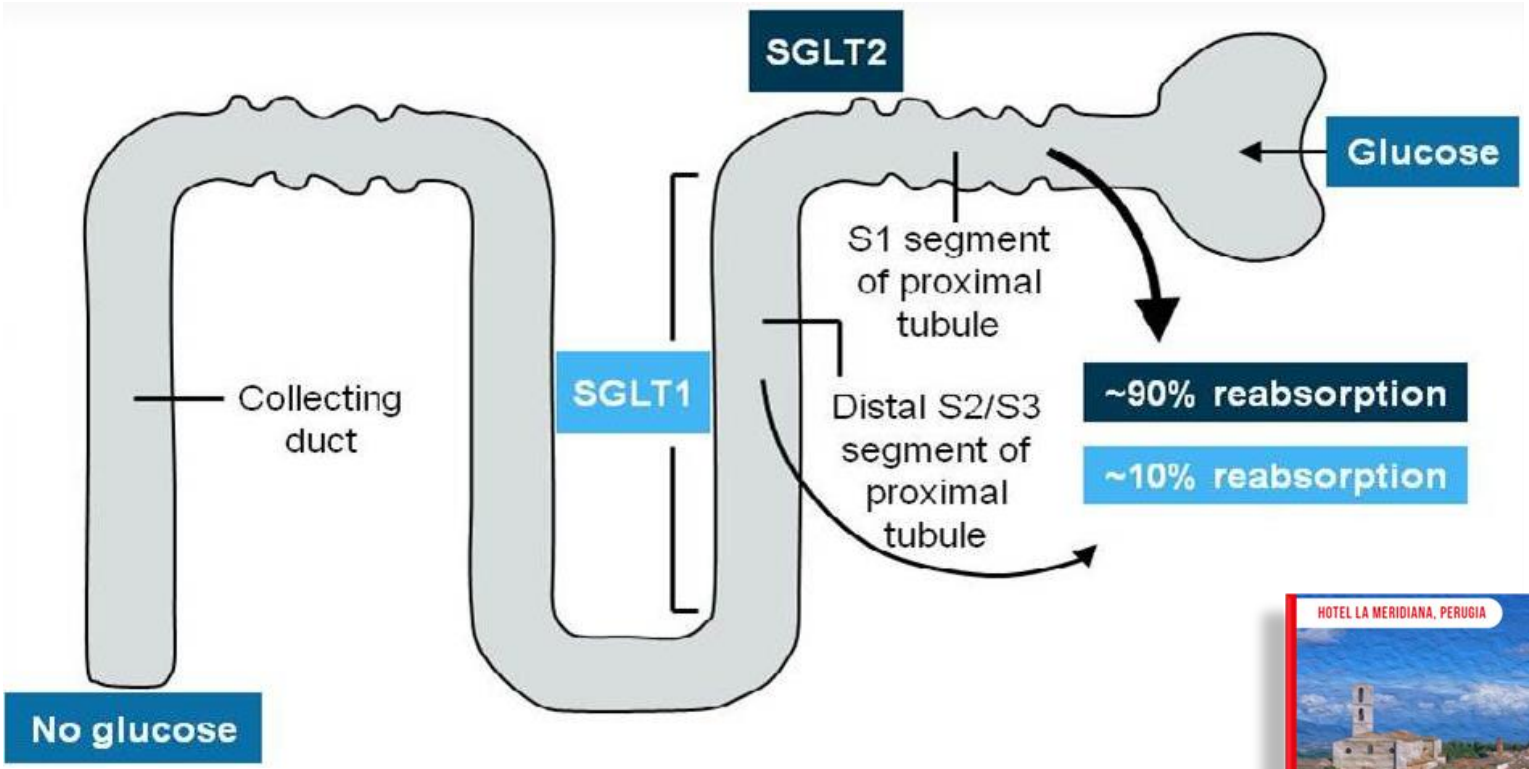
Guideline Comparisons of Goal BP and Initial Drug Therapy for Adults With Hypertension

Guideline	Population	Goal BP, mm Hg	Initial Drug Treatment Options
2014 Hypertension guideline	General ≥60 y	<150/90	Nonblack: thiazide-type diuretic, ACEI, ARB, or CCB; black: thiazide-type diuretic or CCB
	General <60 y	<140/90	
	Diabetes	<140/90	
	CKD	<140/90	ACEI or ARB
ESH/ESC 2013[37]	General nonelderly	<140/90	Diuretic, β-blocker, CCB, ACEI, or ARB
	General elderly <80 y	<150/90	
	General ≥80 y	<150/90	
	Diabetes	<140/85	ACEI or ARB
	CKD no proteinuria	<140/90	ACEI or ARB
	CKD + proteinuria	<130/90	
CHEP 2013[38]	General <80 y	<140/90	Thiazide, β-blocker (age <60y), ACEI (nonblack), or ARB
	General ≥80 y	<150/90	
	Diabetes	<130/80	ACEI or ARB with additional CVD risk ACEI, ARB, thiazide, or DHPCCB without additional CVD risk
	CKD	<140/90	ACEI or ARB
ADA 2013[39]	Diabetes	<140/80	ACEI or ARB
KDIGO 2012[40]	CKD no proteinuria	≤140/90	ACEI or ARB
	CKD + proteinuria	≤130/80	
NICE 2011[41]	General <80 y	<140/90	<55 y: ACEI or ARB
	General ≥80 y	<150/90	≥55 y or black: CCB
ISHIB 2010[42]	Black, lower risk	<135/85	Diuretic or CCB
	Target organ damage or CVD risk	<130/80	

JAMA. 2014;311(5):507-520.

? SGLT2 Inhibitors



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? CRITERI DI DIAGNOSI SONO ATTUALI
? QUANDO INIZIA
? QUAL E' LA PROGRESSIONE DI MALATTIA
? QUALI PROVVEDIMENTI ADOTTARE
? E' CORRELATA CON VASCULAR AGING

L'invecchiamento dell'albero vascolare riflette in genere Il percorso biologico generale ed è un determinante della funzione d'organo

Nella parete arteriosa questo è caratterizzato da una riduzione del contenuto di elastina, e da un aumento del contenuto di collagene e dei suoi legami crociati, portando ad aumento della rigidità arteriosa e con incremento della PAS centrale e periferica.

Negli ultimi anni una migliore comprensione di questi processi hanno portato alla proposta di una condizione denominata precoce invecchiamento vascolare (EVA) in pazienti con aumentata rigidità arteriosa per la loro età e sesso.

Clinical conditions associated with increased arterial stiffness and/or wave reflections

Ageing
Other physiological conditions
- Low birth weight
- Menopausal status
- Lack of physical activity

Genetic background
- Parental history of hypertension
- Parental history of diabetes
- Parental history of myocardial infarction
- Genetic polymorphisms

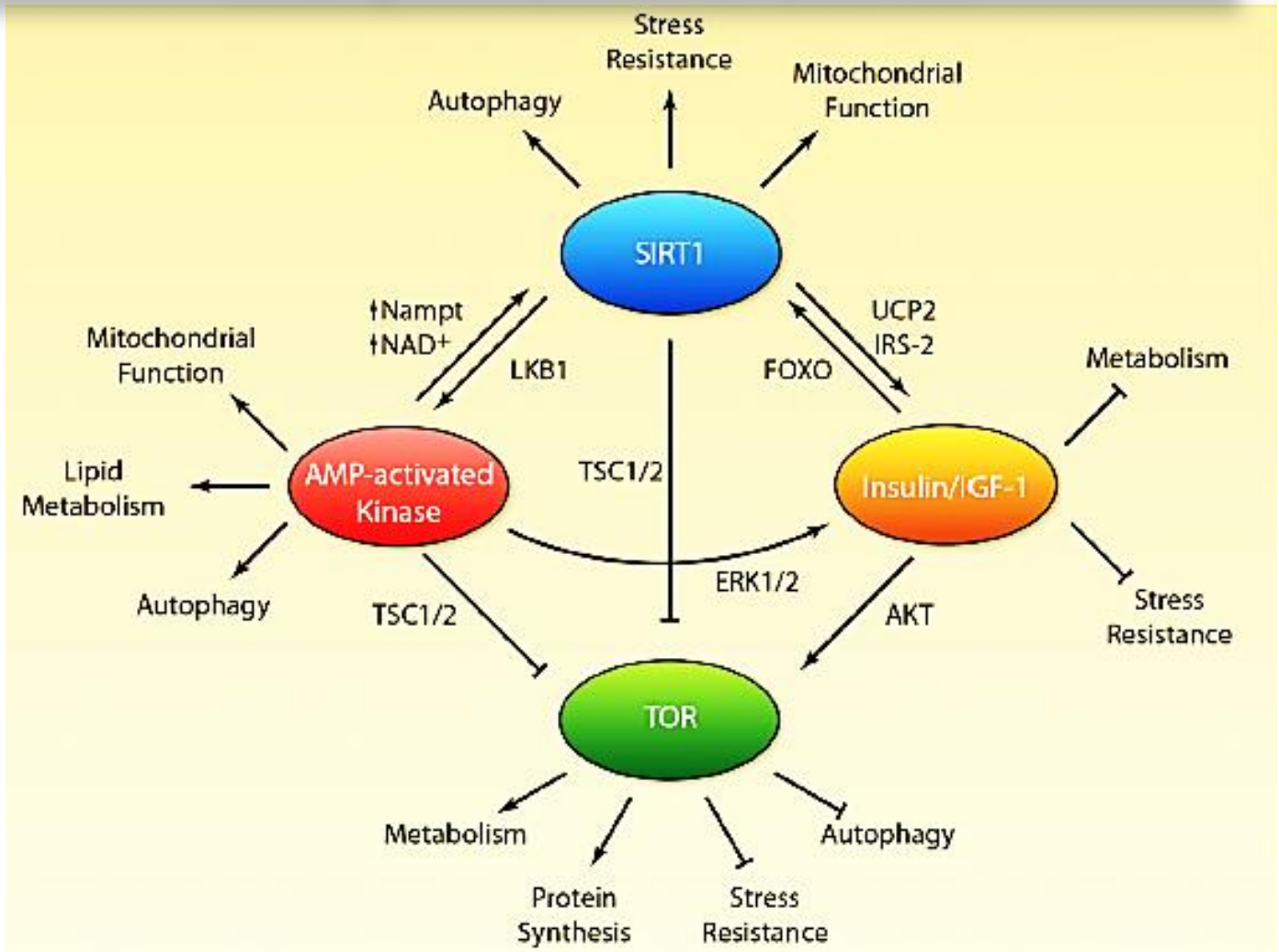
CV risk factors
- Obesity
- Smoking
- Hypertension
- Hypercholesterolaemia
- Impaired glucose tolerance
- Metabolic syndrome
- Type 1 diabetes
- Type 2 diabetes
- Hyperhomocyteinaemia
- High CRP level

CV diseases
- Coronary heart disease
- Congestive heart failure
- Fatal stroke

Primarily non-CV diseases
- ESRD
- Moderate chronic kidney disease
- Rheumatoid arthritis
- Systemic vasculitis
- Systemic lupus erythematosus

European Heart Journal (2006) 27, 2588–2605

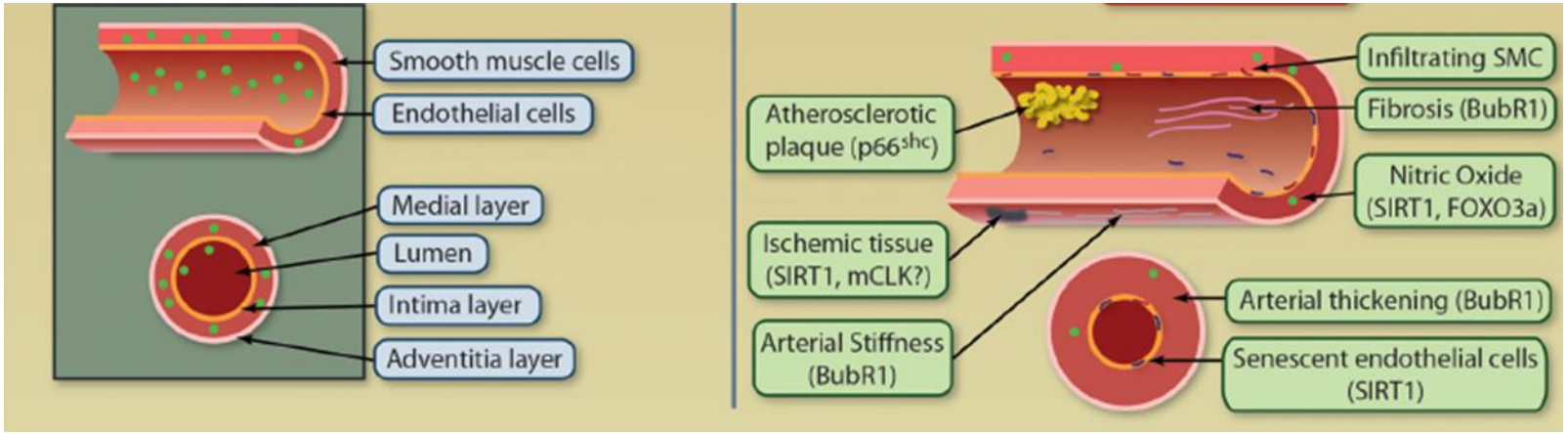
Positive and negative feedback regulation between genes involved in lifespan and age-related diseases including sirtuins, AMPK, IGF-1, and TOR.



Circ Res. 2012;110:1097-1108

Aging cardiovascular tissues are exemplified by pathological alterations including

Increased arterial stiffness impaired endothelial function



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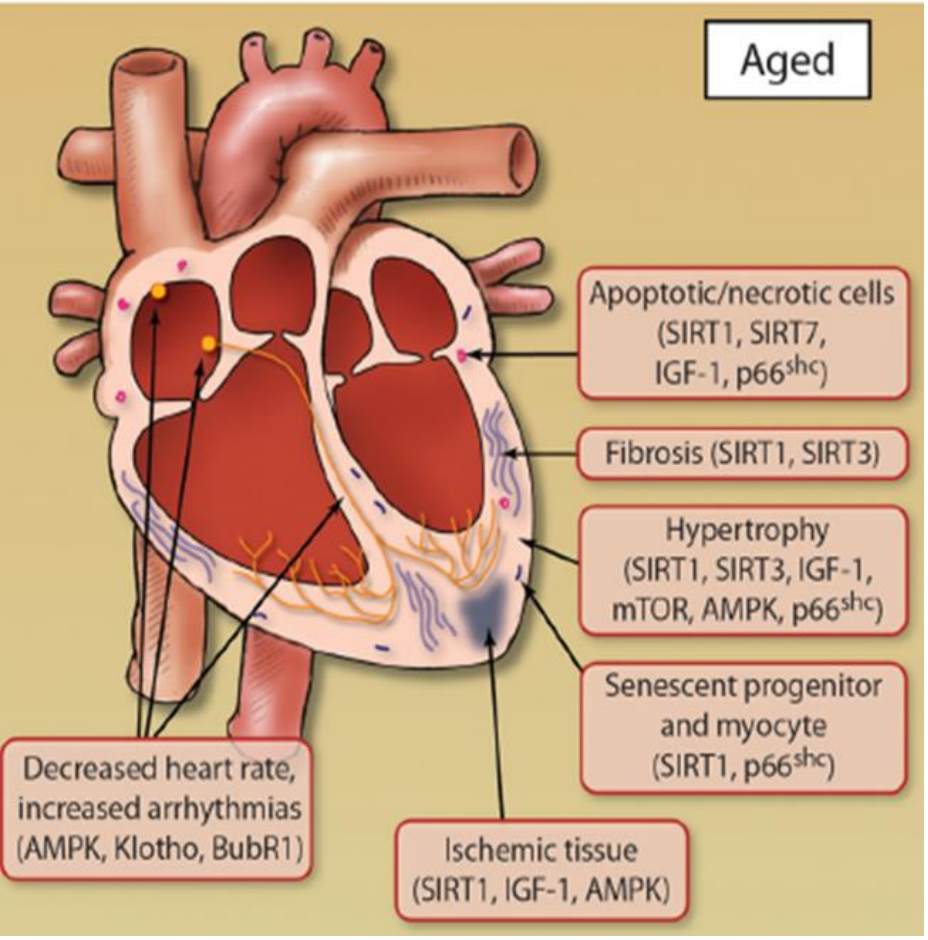
Circ Res. 2012;110:1097-1108

Aging cardiovascular tissues are exemplified by pathological alterations including



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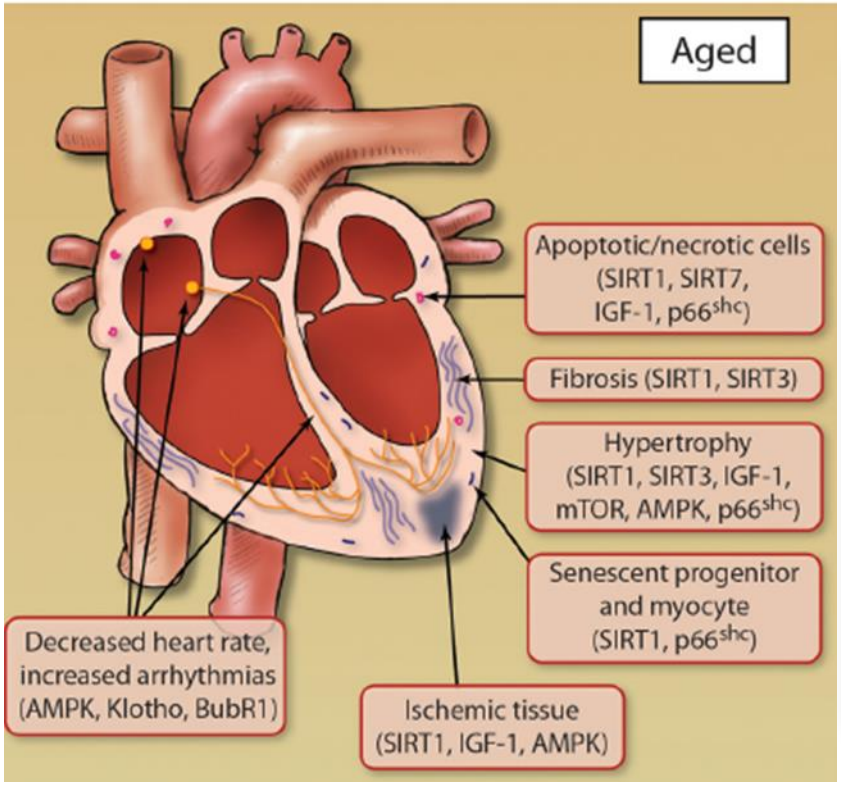
At early ages, the LV diastolic filling rate begins to decline, which is compensated for by increasing arterial contraction to sustain stroke volume and workload, maintaining sufficient ejection fraction.

With age, the LV contractility and ejection fraction, as well as sympathetic modulation of heart rate, and response to -adrenergic receptor activation all decrease.

A reduction in cardiac output due to decline in function with age stimulates the myocardium to compensate by increasing muscle mass by undergoing cardiac hypertrophy; although this may provide short-term enhancement of cardiac output, the long-term effect of hypertrophy diminishes cardiac function

Heart rate modulation is also affected by age with a decrease in both rate variability and maximum heart rate.



Heart rate is influenced not only by the loss of cells in the sinoatrial node (responsible for controlling heart rate) but also by structural changes in the heart, including fibrosis and hypertrophy, which slow propagation of electric impulse throughout the heart

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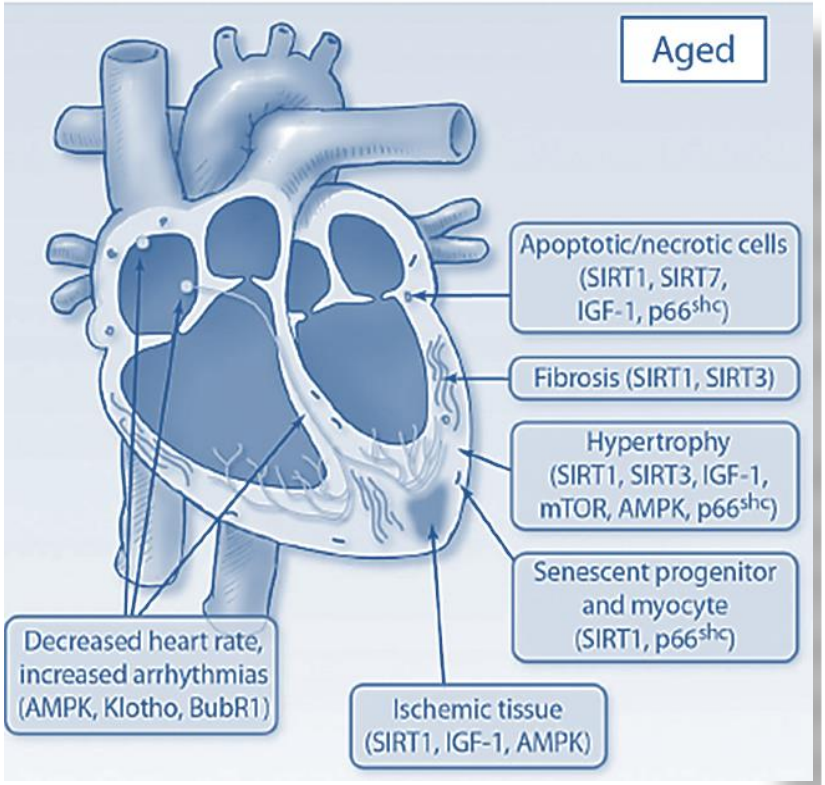
Circ Res. 2012;110:1097-1108

Cardiomyocyte senescence, defined by the increased expression of senescence markers and decreased telomere length



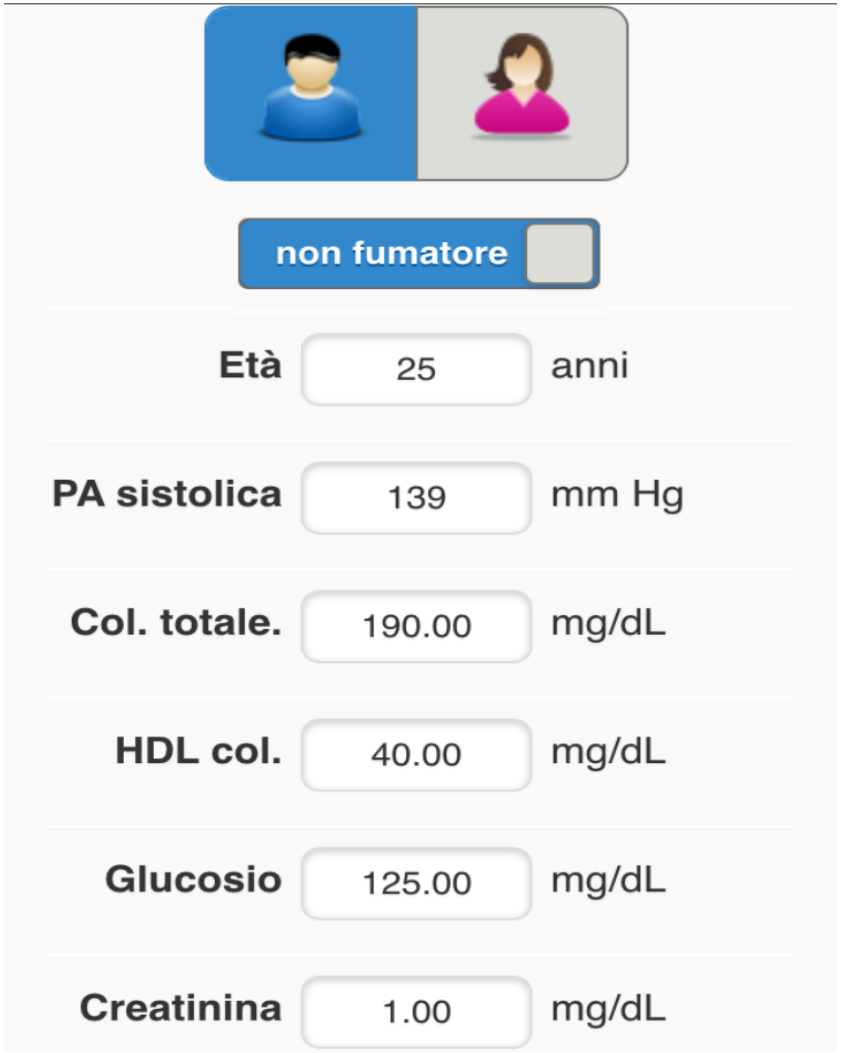
The heart undergoes complex changes during aging that affect the cellular composition, marked by a decrease in absolute number of cardiomyocytes due to increased apoptosis and necrosis and a decrease in repopulation of cardiomyocytes from cardiac stem cell reserves.

With age, cardiomyocytes become more susceptible to stress, including oxidative stress. The increase in oxidative stress due to the increase in reactive oxygen species (ROS) production with age results in an overall enhancement in the rate of cardiomyocyte death with age

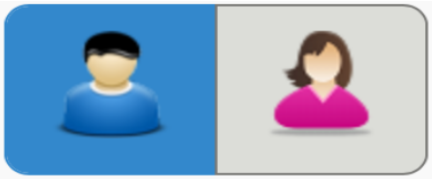
When cardiomyocytes undergo necrosis, the release of cellular components can affect survival of neighboring cardiomyocytes, to promoting the development of proinflammatory and profibrotic environments in the aging heart.

Circ Res. 2012;110:1097-1108

CALCOLO DELLA ETA' VASCOLARE NEL PRE-IPERTESO



EFFETTO DEL FUMO SULLA ETA' VASCOLARE DEL PRE - IPERTESO



fumatore

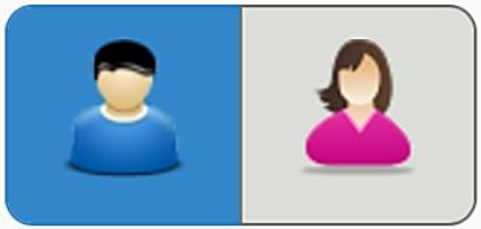
Età	25	anni
PA sistolica	139	mm Hg
Col. totale.	190.00	mg/dL
HDL col.	40.00	mg/dL
Glucosio	125.00	mg/dL
Creatinina	1.00	mg/dL

ADVANT AGE

Calcolatore di rischio vascolare

Età vascolare	Rischio CV a 5 anni
45 anni	3.62%

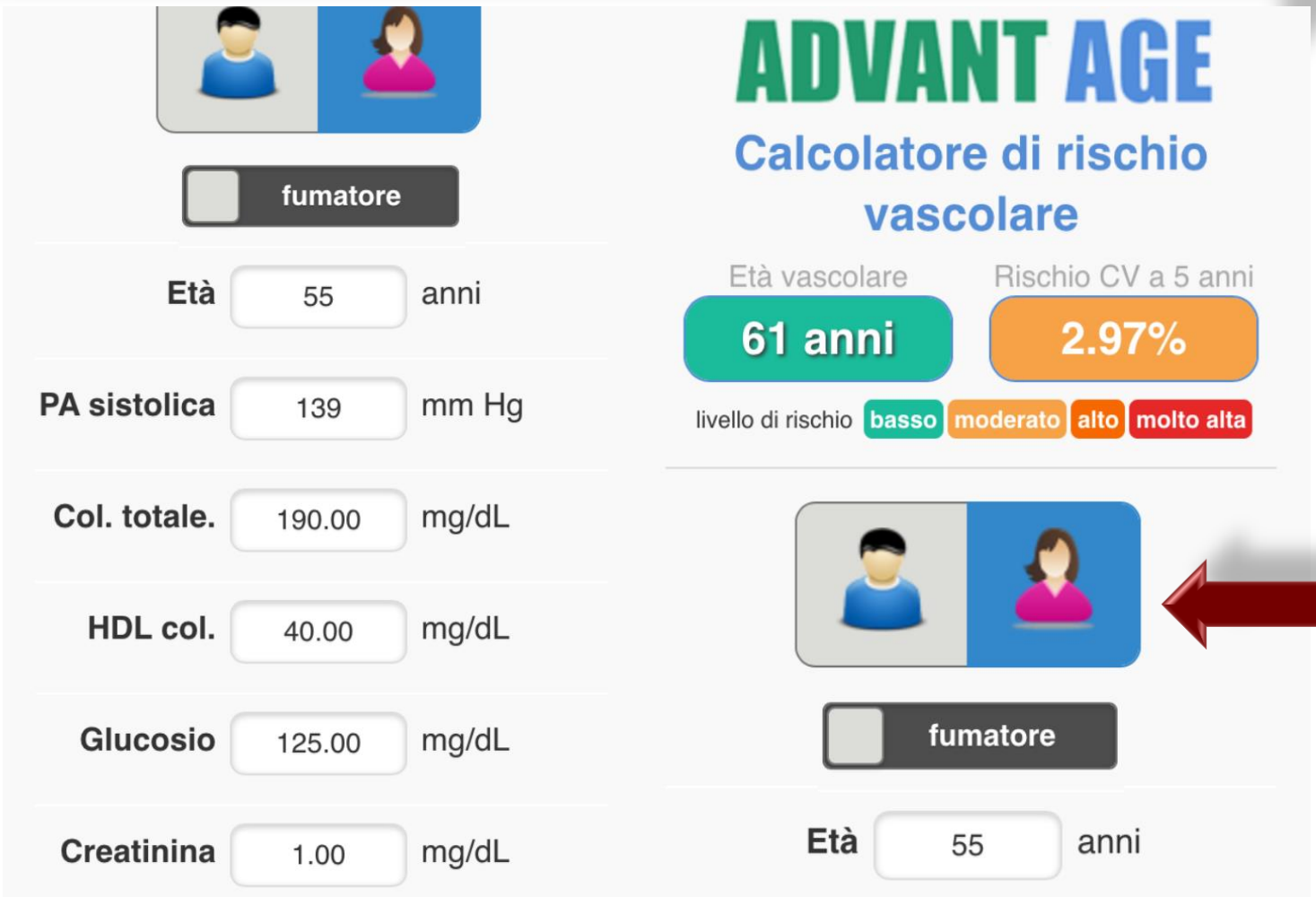
livello di rischio: basso | moderato | alto | molto alta



fumatore

EFFETTO DELLA PROGRESSIONE DELL'ETA' VASCOLARE NEL PRE-IPERTESO

EFFETTO DELLA PROGRESSIONE DELL'ETA' VASCOLARE NEL PRE-IPERTESO



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CONCLUSIONI

CONTINUUM CV TRA LIVELLI DI PA INCREMENTALI – INTERAZIONE- FRCV- GENI

CONDIZIONE REVERSIBILE

I MASCHI GIOVANI SONO PIU' NUMEROSI

OLTRE I 55 ANNI NO DIFFERENZE TRA I SESSI

CONDIZIONA INCREMENTO DEL RISCHIO CV A 5 E 10 ANNI

PRESENTE IN TUTTE LE ETNIE

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GRAZIE X LA VOSTRA ATTENZIONE

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