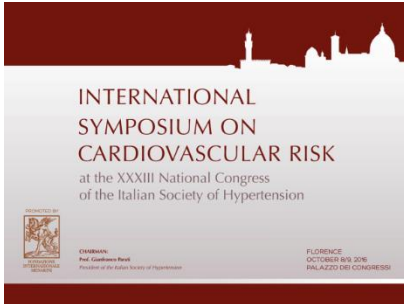


**INTERNATIONAL SYMPOSIUM  
ON CARDIOVASCULAR RISK  
at the XXXIII National Congress  
of the Italian Society of Hypertension  
Florence (Italy), October 08-09, 2016  
Highlights**

## Introduction



Prof. Parati, Chairman of the Symposium, opened the congress, by highlighting the scientific level of the meeting. He presented the main topics of the congress starting from the new insights on hypertension and its pharmacological treatment. This meeting saw the participation of many top researchers in hypertension coming from Italy and Europe.

To follow the presentations of this congress, click on the link below:

<http://www.fondazione-menarini.it/Archivio-Eventi/2016/International-Symposium-on-Cardiovascular-Risk-at-the-XXXIII-National-Congress-of-the-Italian-Society-of-Hypertension/Materiale-Multimediale> ...

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## Contribution by recent meta-analyses

### Two sets of antihypertensive treatment trials:

1. BP-lowering treatment trials to investigate the effects of a BP difference on cardiovascular morbidity and mortality (Active treatment vs Placebo; More Intense vs Less Intense)
2. Trials to compare the effects of BP-lowering treatments based on different classes of drugs (Head to head comparison of two treatments producing the same BP decrease)

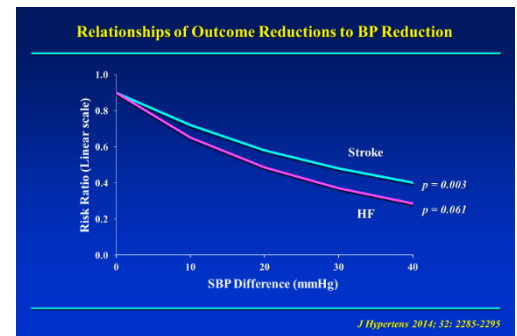
intentional BP-lowering treatment, while the secondary meta-analysis included 68 RCTs performed on the intentional and non-intentional BP-lowering treatment. In the main part of his talk, the speaker went deeper in presenting these data and highlighting the relationship between outcome reduction and BP reduction. More in

### Clinical Questions

1. At what BP level (hypertension grade 1, 2, 3) should BP-lowering treatment be initiated to obtain significant risk reductions?
2. What SBP or DBP levels should be achieved to optimize the benefits of BP-lowering treatment?

Prof Zanchetti from Italy, presented very interesting data taken from recent meta-analyses including two sets of antihypertensive treatment trials, the first one composed by active treatments vs placebo and the second one composed by head to head comparisons of two treatments producing the same BP decrease.

The primary meta-analysis included 47 RCTs trials on the



particular he raised two clinical questions: the first one concerning the right BP level for starting the antihypertensive treatment in order to obtain significant risk reduction and the second one on the SBP/DBP levels to be achieved for optimizing the benefits of the antihypertensive treatment. In conclusion Prof. Zanchetti, presented the Position Statement of the Latin American Society of Hypertension concerning the blood pressure thresholds and targets.

- What are the two sets of antihypertensive treatment trials included in these meta-analyses?
- What are the relationships between outcome reduction and BP reduction?
- At what BP level (hypertension grade 1, 2, 3) should BP-lowering treatment be initiated to obtain significant risk reductions?
- What SBP or DBP levels should be achieved to optimize the benefits of BP-lowering treatment?
- What are the conclusions of the Position Statement of the Latin American Society of Hypertension concerning the blood pressure thresholds and targets?

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# Comparison among recommendations issued by last US, Canadian, British and European Guidelines

Definitions and classification of office BP levels (mmHg)\*

Category	Systolic	and	Diastolic
Optimal	<120	and	<90
Normal	120-129	and/or	80-84
High normal	130-139	and/or	85-89
Grade 1 hypertension	140-159	and/or	90-99
Grade 2 hypertension	160-179	and/or	100-109
Grade 3 hypertension	≥180	and/or	≥110
Isolated systolic hypertension	≥140	and	<90

\*The best practice BP category is defined by the highest level of BP, whether systolic or diastolic, indicates systolic hypertension should be treated. † or ‡ according to degree of disease in the organ indicated.

The Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC) | Hypertension 2013 | 136-143

stratification of total CV risk in categories, the blood pressure goals in hypertensive patients, monotherapy vs. drug combination strategies, the

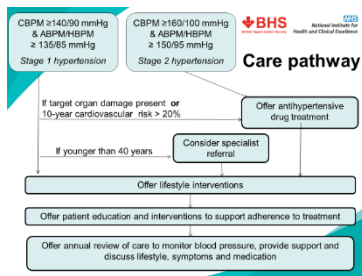
Prof. Kotsis from Greece, spoke about the comparison among guidelines from different countries, with a particular focus on US, Canadian, British and European Guidelines. The speaker presented all the main topics of these guidelines like definition of hypertension based on the different methods of detection, the treatment's options and finally the treatment of special populations like elderly people, diabetic patients and people affected by nephropathy. Prof. Kotsis, starting from real clinical cases, highlighted the main differences among these guidelines, leading to different therapeutic protocols for very similar patients. In conclusion the speaker pointed out that physicians should be aware that each of their patients is unique and guidelines may not feel well to all.



CHEP 2016 Guidelines

#### What's new?

- **New thresholds and targets for high risk patients (SPRINT)**
- **Assessing** clinic blood pressures using **automatic electronic** (oscillometric) monitors
- **Adopting** healthy behaviours is integral to the management of hypertension (focus on potassium supplementation)
- **Updating** the evaluation of patients with suspected secondary forms of hypertension (focus on primary hyperaldosteronism)
- **Updating** the treatment of patients with hypertension with concurrent coronary artery disease
- **New** recommendations on the diagnosis and management of hypertension in pediatric patients (*NOT the focus of this presentation*)



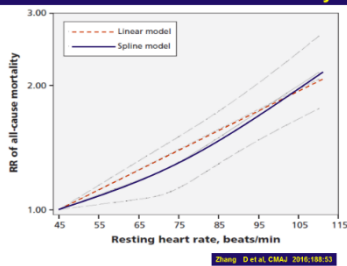
- What are the differences in definition of old age among guidelines?
- What are the differences about the initial treatment?
- What are the differences in the definition of normal BP in diabetics and CKD patients?
- What's about the stratification of total CV risk in categories in the four guidelines?
- What are the definitions of hypertension by office and out-of-office BP levels in the European guidelines?

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# ESH consensus document on heart rate in hypertension.

## The dose-response analysis of resting heart rate with risk of all-cause mortality



Prof. Palatini from Italy spoke about the ESH consensus document on heart rate in hypertension, highlighting the need for more data on HR in hypertensive patients. Starting from data taken by some meta-analyses on resting rate and CV mortality in the general population, the speaker pointed out the close relationship between high heart rate and CV mortality in hypertensive patients. In the main part of

his talk, Prof. Palatini raised some topics about the methods for a correct HR measurement, like the basal conditions to be respected in order to obtain reliable data, or the choice between office, self or ambulatory measurements. The main

problem related to HR in

hypertensive patients is the lack of data to be used for identifying the cut-off level for the definition of tachycardia in hypertension, the speaker pointed out. In the last part of his presentation Prof. Palatini spoke about HR as a possible risk factor for cardiovascular disease. In conclusion the speaker highlighted the need for implementing randomized clinical trial aiming at evaluating the effects of HR reduction in hypertensive patients with high HR.

## Is high heart rate a CV risk factor?

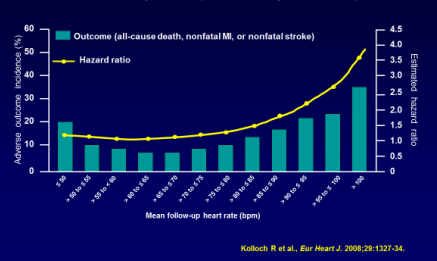
Criteria used for establishing the clinical validity of epidemiologic associations in cardiovascular disease

- 1) Strength of the association.
- 2) Graded nature of the relationship.
- 3) Sufficient time of exposure to the risk factor.
- 4) Consistency of the association in a variety of populations of different age, race, and gender.
- 5) Independence from other risk factors and comorbid conditions.
- 6) Predictive capacity in populations exposed to that factor.
- 7) Plausibility for the association.

From Stamler J. 2001

## Impact of post-treatment heart rate in patients with hypertension and coronary artery disease

INVEST study, 22 192 patients; 2.7-year follow-up

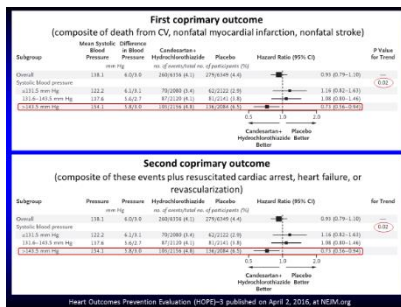


- What is the correlation between resting heart rate and CV mortality in the general population?
- Is the threshold of 100 bpm appropriate in order to consider HR as tachycardia?
- What is the correct statistical method for identifying the upper normal limits for office and ambulatory heart rate in Hypertension?
- Is high heart rate a CV risk factor?
- What are the main Recommendations for the measurement of resting heart rate?
- Should tachycardia be a target for treatment in hypertension or influence drug choice?

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# The impact of ACCORD, SPRINT and HOPE-3 trials



Prof. Agabiti Rosei from Italy, spoke about the impact of these three trials on Blood pressure threshold and target. The speaker presented the main characteristics of these studies pointing to three major topics: the antihypertensive treatment in pts with high normal BP at intermediate risk, the intensive treatment characterized by the reduction of SBP close to 120 mmHg and the intensive BP reduction in patients with diabetes and hypertension. Prof. Agabiti Rosei went deeper in highlighting the correlation between the results in term of efficacy in BP

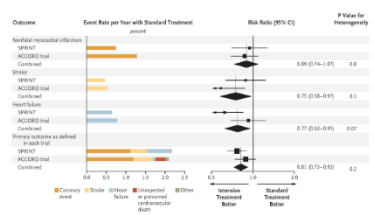
**Question: Maintain BP or intensify?**

- 75 year old female
- HTN, A fib, PAD
- Meds: Toprol XL 100 daily, CTDN 25 daily, apixiban 5 daily, ASA 81, statin
- Recent history: slipped on icy side walk with elbow fracture
- Non-smoker, 1-2 glasses red wine/ week, walks regularly
- ROS: unremarkable
- Vitals: BMI 26.8, HR irregular 70-72, **BP 136/72**
- Physical exam: irregular heart sounds, no murmur, otherwise unremarkable
- Labs:
  - TC 174, LDL 87, HDL 65
  - Cr 0.9, eGFR 65
- ABI: 0.85 on left, 0.95 on right

www.nejm.org/doi/full/10.1056/NEJMc1515

lowering, events rate reduction and safety, in all the three studies. In conclusion the speaker pointed out that the intensive treatment with more than one or two drugs can be useful in reducing CV events in patients with SBP above 140 mmHg, but in general further studies are needed in order to identify those patients who may benefit by lower BP, more in particular in groups of patients with careful characterization of their phenotypic manifestations and possibly also of genetic markers.

**Outcomes Data from SPRINT and the ACCORD Trial and Combined Data from Both Trials**



- What is the effect of the antihypertensive treatment in pts with high normal BP at intermediate risk in term of events reduction in the HOPE-3 trial?
- What are the SPRINT Major Inclusion Criteria?
- What are the cardiovascular events and the mortality rate reductions in SPRINT study?
- What are the main results of the ACCORD randomized trial concerning the primary outcome?

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# Reappraisal of ESH/ESC hypertension guidelines.

**NEW evidence in HT**

- Lifetime (or long-term) protection
- BP reduction in Acute Stroke
- Cognitive dysfunction/dementia
- BP Threshold (grade 1 HT)
- BP Target for maximal pt protection (and related safety issue in AF)
- White coat/Masked HT
- Treatment of Resistant HT (drugs/invasive approaches)
- Residual risk in treated HT
- Factors in low rate HT control worldwide (adherence/inertia etc)
- New aspects of treatment in DM
- Optimal salt/potassium intake
- Treatment of the frail elderly
- Emerging risk factors, e.g. uric acid

Prof Mancia from Italy, spoke about NEW evidence in HT starting from a reappraisal of the ESH/ESC guidelines on hypertension. The speaker pointed out the main topics linked with diagnosis, treatment, prognosis of hypertensive patients and special populations like diabetic patients, patients with chronic kidney disease and elderly patients.

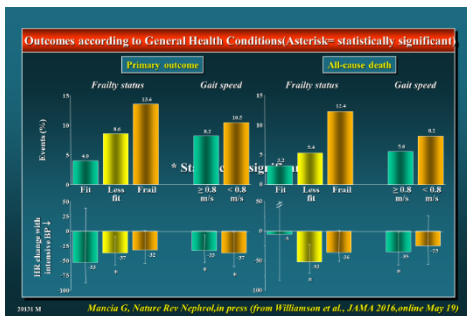
**Effects of BP Lowering (10/5 mmHg SBP/DBP) in Trials with Average Baseline BP in Grade 1 and Average Low-to-Moderate CV Risk**

Outcome	Trials (n)	Mean SBP/DBP (mmHg)	Difference SBP/DBP (mmHg)	Standardized RR (95% CI)	Standardized RR (95% CI)	Absolute Risk Reduction 1000 pts/5 years (95% CI)	NNT 5 years (95% CI)
Stroke	4	146/91	-7.1/-4.5	0.23 (0.11-0.39)	0.23 (0.11-0.39)	-21 (-26, -1)	47 (39, 180)
CHD	5	145/91	-6.5/-4.2	0.68 (0.48-0.95)	0.68 (0.48-0.95)	-17 (-18, -7)	86 (55, 531)
Stroke + CHD	4	146/91	-7.1/-4.5	0.51 (0.36-0.75)	0.51 (0.36-0.75)	-24 (-15, -35)	29 (23, 54)
CV Death	4	146/91	-7.1/-4.5	0.57 (0.32-1.02)	0.57 (0.32-1.02)	-9 (-14, -1)	119 (72, 222)
All cause Death	4	146/91	-7.1/-4.5	0.53 (0.32-0.80)	0.53 (0.32-0.80)	-19 (-25, -8)	54 (40, 119)

0.1 0.2 0.5 1 2 5  
Active better Control better

Thomopoulos et al., J Hypertens 2014; 32: 2296

In his talk Prof. Mancia presented data taken by the main randomized trial performed in the last years on hypertensive patients: ACCORD, SPRINT and HOPE-3 trials. In conclusion the speaker highlighted the importance for a better BP targeting according to age, ethnicity, risk typology, CV history, Absence/presence of organ damage, Clinical stability/instability of the hypertensive patients.

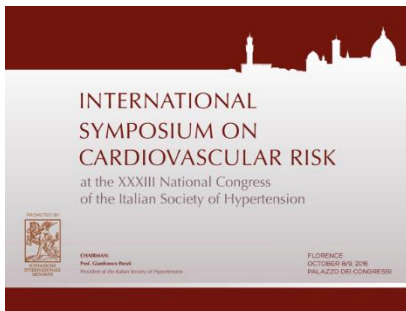


- Does one target fit all patients?
- What are the main arguments in favour of lower SBP targets highlighted by the speaker?
- What are the BP target for treatment recommended by the 2013 ESH/ESC Hypertension Guidelines?
- What are the main topics raised by Prof. Mancia in his talk?

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## New perspective in HOME BPM



Prof Stergiou from Greece, talked about Home BPM and its new perspective. The speaker presented very interesting data on the prognostic value of this technique. Home BPM seems to be more reliable than office blood pressure measurement from a prognostic point of view, the speaker pointed out. Prof. Stergiou presented also data from interventional trials on hypertensive patients, comparing home BPM vs office BPM and ABPM. In many cases the best measurement seems to be the home BPM. Prof. Stergiou completed his talk by presenting

data on patients' long-term follow-up by using the Home BPM technique. The speaker concluded his presentation by highlighting that it is time to take more seriously the Home BPM technique.

- **Why Home BPM is more reliable than Office BPM in hypertensive patients' prognosis?**
- **What is the Achilles' heel of Home BPM?**
- **How is it possible to eliminate the biases of Home BPM?**
- **What's about Home BPM from a diagnostic and treatment point of view?**
- **Can Home BPM open a new way for tele monitoring medicine application?**

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# BP Variability in clinical practice.

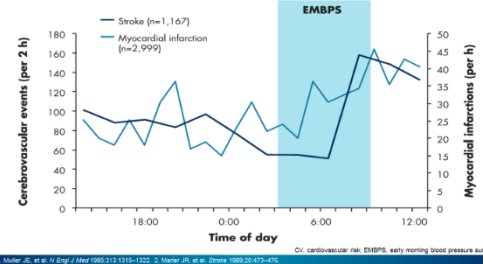
BPV INDICES SUMMARY	
Index type	BPV indices
Index for Overall variability	SD Coefficient of variation (CV) 24h Weighted SD Blood pressure variability ratio (BPVR) Variability independent of mean (VIM) 24h SD weighted for the time interval between consecutive readings Smoothness Index (SI) and Treatment-On-Variability Index (TOVI) to assess treatment effects
Index for consecutive readings	Average real variability (ARV) Successive variation (SV) Time rate rSSR VABS2
Index for extreme readings	Range peak size trough size

Prof. Parati from Italy talked about BP variability, its meaning and the methodology to be applied for its detection and its treatment. The speaker started his talk by summarizing the main indices to be measured with the new applicable devices and highlighted the main issues linked with the methodologies used for BPV measurements.

In the main part of his presentation,

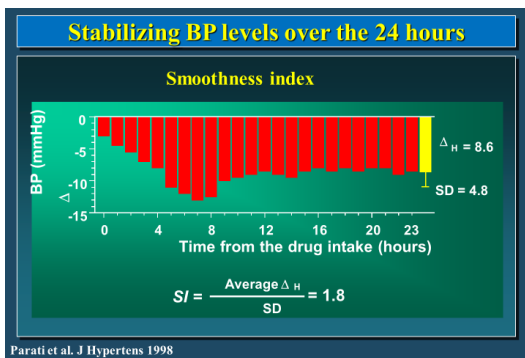
Prof. Parati spoke about the meaning of BPV as an additional risk factor. The speaker presented data from clinical trials runned in hypertensive patients, the correlation

Association between CV events and early morning period



between BPV and events was

all over strong. Prof. Parati finally spoke about the correlation between BPV reduction and CV events, by presenting data from interventional trials, demonstrating that the long acting CCBs probably are the best drugs able to reduce BPV. The speaker concluded his talk by highlighting the need for new prospective outcome studies for confirming that treatment-induced reduction in BPV improves



outcome.

- How is it possible to standardize BP variability measurements?
- What are the main measurable BPV indices?
- What is the correlation between BPV and CV events?
- What is the better time for measuring BPV, day by day or week by week or others?
- How to measure Smoothness index?
- Is there enough evidence to consider BPV as a new target for treatment?

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# How to optimize office BP monitoring



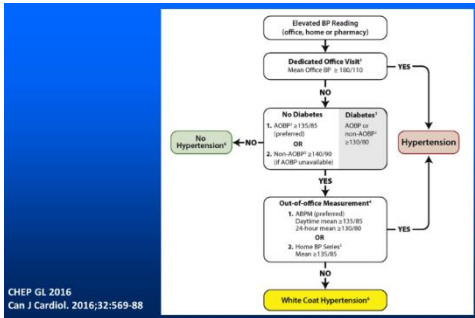
Prof. Bilo from Italy spoke about the methods to be applied for a better measurement of office blood pressure. The speaker highlighted that the use of mercury and aneroid sphygmomanometers can lead to some methodological errors resulting in wrong BP measurements. Prof. Bilo went deeper in explaining these errors

**Problems inherent in the technique**

- 1) microscopic fraction of 24h BP values is recorded
- 2) difficulty in detecting Korotkoff sounds (in particular the Vth sound, leading to inaccurate diastolic blood pressure estimation)
- 3) instability of blood pressure (as in atrial fibrillation)
- 4) anatomical considerations (e.g. difficulty to properly fit the cuff on conical arms)
- 5) alarm (white-coat) reaction

and their consequences. The speaker talked also about the problems in office BP measurements in elderly patients

and more in particular in patients affected by atrial fibrillation. Prof. Bilo presented data on patients affected by white coat hypertension and the different methods of BP measurements to be applied for reducing this effect. In conclusion the speaker highlighted the role played by automated devices as an interesting approach capable to reduce variability in office BP measurements.



- What are the most common errors in office BP measurements?
- What's about cuff errors and cuff solutions?
- What are the main problems inherent in office BP monitoring technique?
- What are the SPRIT trial results?
- What are the advantages by using electronic manometers for office BP measurements?
- What are the main problems in office BP measurements in patients affected by atrial fibrillation?

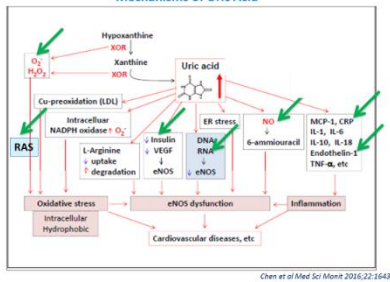
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# Uric acid, inflammation and atherosclerosis.

The Oxidant-Antioxidant Paradox Mechanisms of Uric Acid



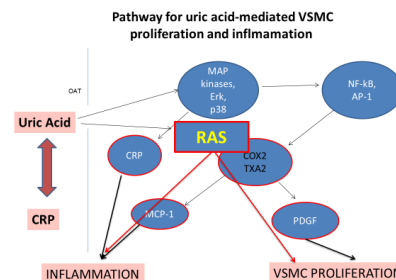
Chen et al Med Sci Monit 2016;22:1643

Prof. Jelakovich from Croatia, spoke about this topic by presenting data from basic science studies, population studies and clinical studies like observational, longitudinal and interventional studies. The speaker started his talk by presenting the two paradoxes linked with Uric Acid, the first one about the relationship between

advantages-disadvantages from an evolutionary point of view and the second one about the oxidative and anti-oxidative

mechanisms. The speaker presented a lot of data

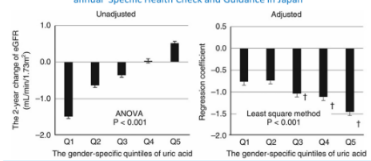
about the effect of UA on human vascular cells, endothelial cells, NO production, cell proliferation and oxidative stress. From a clinical point of view, Prof. Jelakovich presented data from studies in health subjects, low birth young men, essential hypertension, low risk patients, high risk patients and chronic kidney diseases patients. In all these cases the speaker highlighted the strong correlation between UA and CV risk, chronic Kidney disease, Hypertension and



Johnson et al Hypertension 2003;41:1183

A slight increase within the normal range of serum uric acid and the decline in renal function

a nationwide database of 165 847 subjects (aged 29-74, n 40%) annual Specific Health Check and Guidance in Japan



Adjusted for gender, age, BMI, SBP, DBP, eCRP, TBA1s, high-density lipoprotein, LDL-C, HDL-C, smoking, alcohol consumption and proteinuria.

Increased risk for incidental CKD at uric acid of  $\geq$  6.3 mg/dL (356  $\mu$ mol/L) in males 5.5 mg/dL (327  $\mu$ mol/L) in females Q5 vs Q1

Nephrol Dial Transplant 2014; 29: 2286-2292

Atherosclerosis.

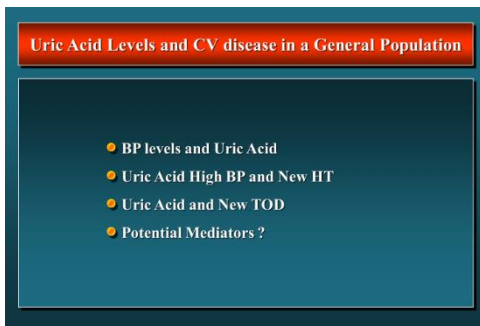
- Is asymptomatic hyperuricemia to be treated or not?
- Which SUA value might have beneficial effects?
- Is asymptomatic hyperuricemia a marker, a cause, a factor or an epiphenomenon?
- What is the SUA effects on NO production?
- There is a relationship between SUA and endothelial dysfunction?
- What is the correlation between SUA and Chronic Kidney Disease?

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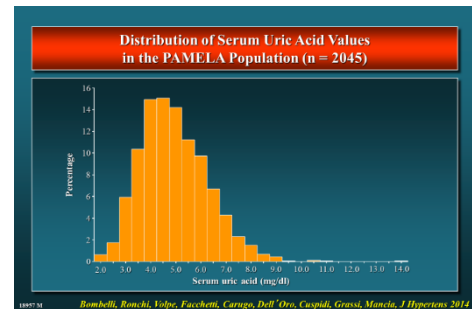
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# Uric acid levels in a general population.

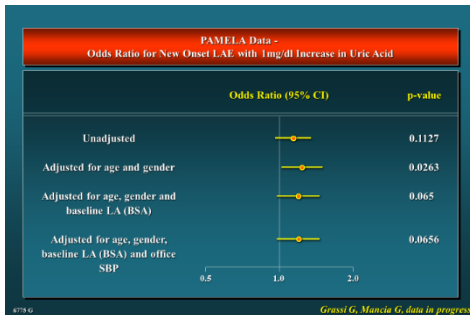


Prof. Grassi from Italy, spoke about Uric Acid and CV disease in General population. In order to analyse this relationship, the speaker presented data on the correlation between BP levels and UA levels, UA and Hypertension and the onset of new hypertensive patients. More in particular Prof.

Grassi went deeper in presenting data from Pamela study on BP variability and Hypertension related to UA levels.



In the second part of his presentation, the speaker talked about the relationship between UA levels and the onset of new Hypertension and new Target Organ Damage. In order to describe this relationship Prof. Grassi presented data from Pamela study. Based on these data, the correlation between UA increasing levels and onset of Left Ventricular Hypertrophy was strong and evident, the speaker pointed out.



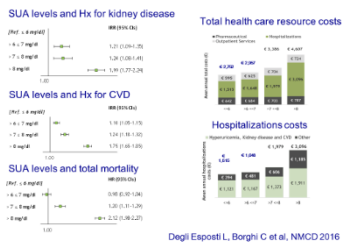
- What are the possible determinants of the prognostic role of UA for new Hypertension and HT-related new Target Organ Damage?
- There is a correlation between UA levels and BMI?
- There is a correlation between UA levels and onset of new Left Atrial Enlargement?
- What is the correlation between Framingham data and UA levels?

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# Uric Acid and Cardiovascular Events.

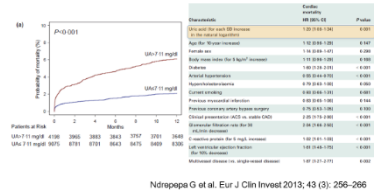
Retrospective analysis on hospitalization and health care costs for high SUA in Italy



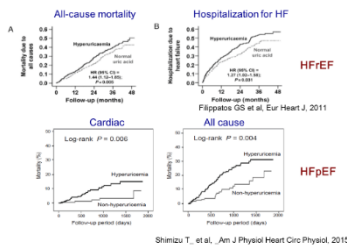
Prof. Borghi from Italy, spoke about the correlation between UA levels and Cardiovascular events, by presenting data from some published Interventional trials. In the first part of his presentation the speaker talked about the relationship between UA levels, Hypertension and CV disease, by presenting data demonstrating how strong is this correlation. The speaker went deeper in his talk by highlighting the strong correlation between hyperuricemia and heart failure with reduced but also preserved ejection fraction, the same prognosis in patients affected by heart failure is worsened by hyperuricemia, the speaker pointed out. In the final part of his presentation, Prof. Borghi spoke about the possible mechanisms supporting CV disease in patients with High SUA highlighting the role played by xanthine oxidase in enhance the oxidative stress.

## Uric acid and prognosis in angiography-proven coronary artery disease

13 273 patients with angiographic confirmation of significant CAD and UA measurements available (8149 patients stable CAD, 5124 patients ACS).



Kaplan-Meier plots for all-cause mortality and HF hospitalization in patients with HFrEF, HFpEF

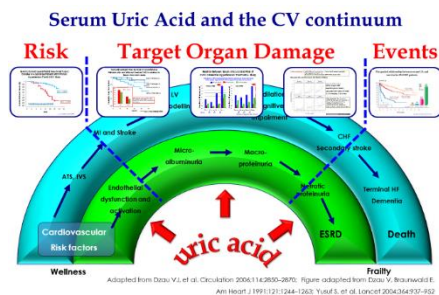


- What are the determinants of SUA levels?
- How many people are actually affected by silent hyperuricemia in the world?
- How close is the relationship between UA levels and Hypertension?
- How strong is the correlation between UA levels and CV disease?
- There is a correlation between Hyperuricemia and Coronary Artery Disease?
- What is the correlation between the increasing activity of Xanthine oxidase, Uric acid levels and RAS activation?
- What is the role of intracellular Uric Acid in determining the oxidative stress and the mitochondrial dysfunction?

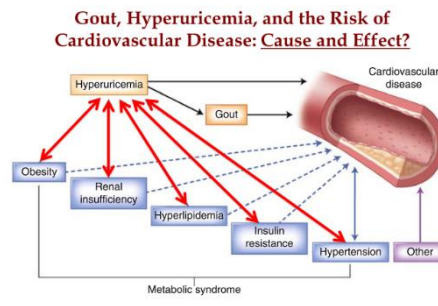
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# Effect of reduction of uric acid on cardiovascular risk.

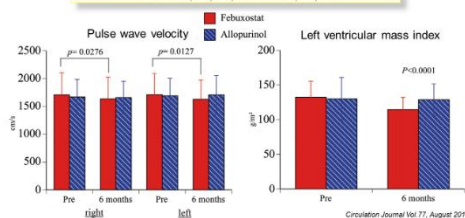


Prof. Desideri from Italy, spoke about the correlation between the effect of the reduction of UA levels and the Cardiovascular risk levels. The speaker started his presentation by highlighting the correlation between UA levels and new-onset of type 2 diabetes in hypertensive patients as well as the risk of CVD, Kidney disease and survival in CHF patients. The main part of his talk was spent by the speaker in presenting data on the relationship between Urate lowering treatment and CV risk, Target Organ Damage and hard endpoints. All these data strongly highlighted the central



**Comparison of Febuxostat and Allopurinol for Hyperuricemia in Cardiac Surgery Patients (NU-FLASH Trial)**

Akira Sezai, MD, PhD; Masayoshi Soma, MD, PhD; Kin-ichi Nakata, MD, PhD; Mitsuhiro Hata, MD, PhD; Isamu Yoshitake, MD, PhD; Shinji Wakai, MD, PhD; Hiroaki Hata, MD, PhD; Motomi Shiono, MD, PhD



role of xanthine oxidase in determining the oxidative cascade leading to cardiovascular disease, target organ damage, kidney disease and so on. Prof. Desideri finally presented data on the effects of lowering UA levels drugs, more in particular he spoke about allopurinol and febuxostat. In conclusion the speaker pointed out that the selectivity of XO-blockade can play a major role in the management of hyperuricemia in addition to the effects of SUA.

- What are the results of the xanthine oxidase inhibition in patients affected by HF?
- What is the correlation between UA levels and onset of type 2 diabetes?
- What are the main determinants of Hyperuricemia in humans?
- What is the correlation between genetically high Uric Acid levels and cardiometabolic outcomes?
- What are the main genetic variants implicated in the pathogenesis of hyperuricemia?

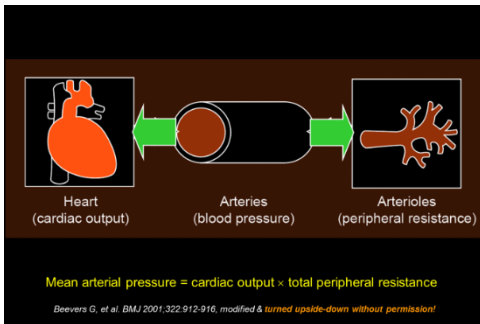
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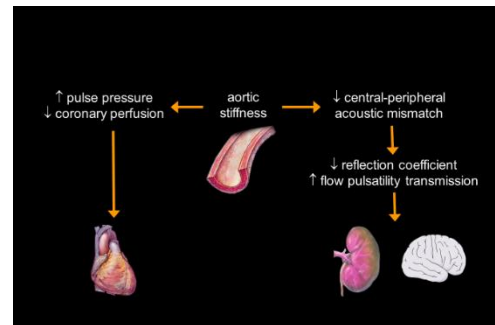


# Increased arterial stiffness.

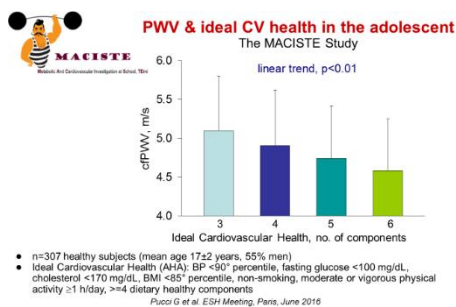


Prof. Schillaci from Italy spoke about increased arterial stiffness, more in particular the speaker pointed to its meaning, highlighted that arterial stiffness is nothing more than pulse wave velocity at a higher level than normal.

Prof. Schillaci presented also data on the prognostic value of arterial stiffness, highlighting



its possible role as a link between non-CV conditions and CV risk. The speaker went deeper in his talk by presenting data on the relationship between arterial stiffness and renal hemodynamic and brain structure and function. In this context Prof. Schillaci presented data on



the correlation between arterial stiffness and cerebral small-vessel disease. In the last part of his presentation the speaker talked about the use of arterial stiffness as an early marker of disease by presenting data taken from the MACISTE study, a school-based cross-sectional investigation. Finally, Prof. Schillaci presented data on the effects of BP-lowering treatment and aortic stiffness reduction.

- How is it possible to assess the arterial stiffness at a regional level?
- Why does arterial stiffness hurt from a pathophysiological point of view?
- Is arterial stiffness measurable in a simple, reproducible way?
- What are the BP-lowering drugs with the best effect on arterial stiffness?
- Is arterial stiffness associated with major CV risk factors and TOD?

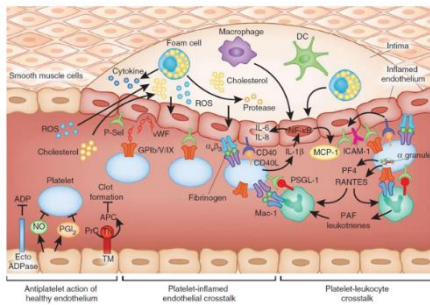
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# Endothelial and erectile dysfunction.



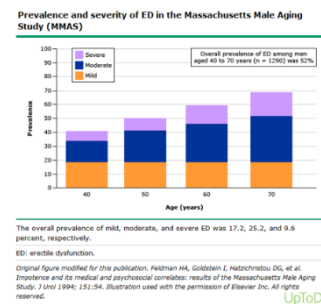
Prof. Brguljan from Slovenia spoke about endothelial and erectile dysfunction, by presenting data on the strict connection between endothelium and erectile dysfunction.

More in particular the speaker went deeper in explaining the complex relationships between endothelium and inflammatory cells and signalling.

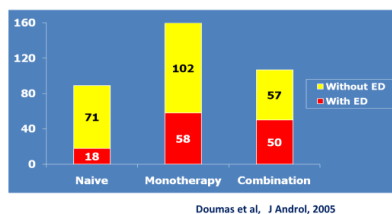
In the main part of her presentation, Prof.

Brguljan presented clinical cases of patients

affected by erectile dysfunction, highlighting that the main sexual organs are Brain, Skin and Genital organs, respectively cited by importance. Finally, the speaker talked about antihypertensive drugs and their relationship with ED. In conclusion Prof. Brguljan highlighted the importance of physical activity and the role of phosphodiesterase type 5 inhibitors in counteracting erectile dysfunction symptoms.



## Antihypertensive therapy and ED



Doumas et al, J Androl, 2005

- What are the antihypertensive drugs more involved in the onset of ED?
- What is the correlation between physical activity and ED?
- What are the main contraindications of the Phosphodiesterase Type 5 inhibitors?
- What does ED mean?

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# Hypertension in the elderly and frail elderly.

## Management of Hypertension in the Very Old

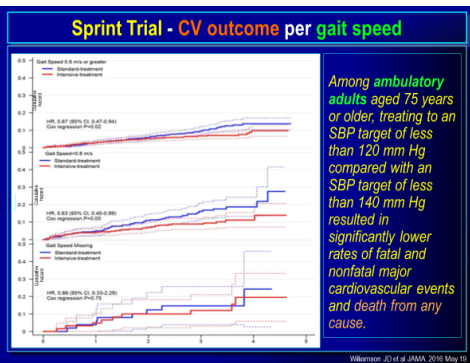
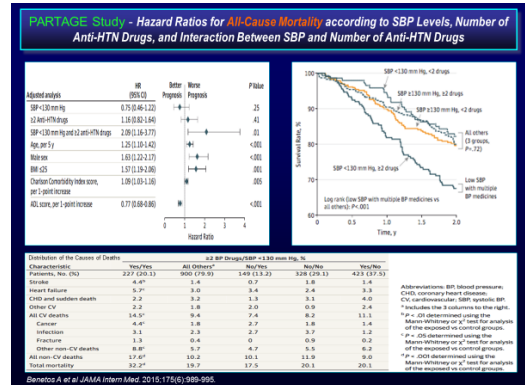
### Benefits of treatment

### BP thresholds and targets

### The choice of treatment

Prof Ferri from Italy spoke about hypertension in the elderly people. The speaker presented data on three major topics: the benefit of treatment, BP thresholds and targets and the choice of treatment. Prof. Ferri highlighted the importance to remember that both low BP and orthostatic

hypotension are associated with syncope, falls and related injuries and fractures, in this view it is very important to take care of the very frail older population before starting any type of antihypertensive



treatment. The main part of his presentation was spent by the speaker in presenting data from clinical studies on the BP thresholds and targets to be achieved in elderly and very old frailty patients. Finally, Prof. Ferri spoke about antihypertensive drugs and the choice of treatment, highlighting the importance to start with monotherapy in the elderly and moreover in the very old people in order to avoid orthostatic hypotension, that is very dangerous in these patients.

- What is the BP target in elderly subjects?
- What's about the management of hypertension in very old people?
- How many drugs have to be administered to elderly patients?
- What's about the benefit of treatment in elderly and frail elderly?
- What are the BP thresholds and targets?
- What is the choice of treatment?

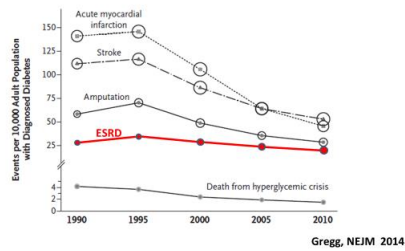
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# Management of hypertensive patients with diabetes and CKD

Changes in Diabetes-Related Complications in the United States, 1990–2010

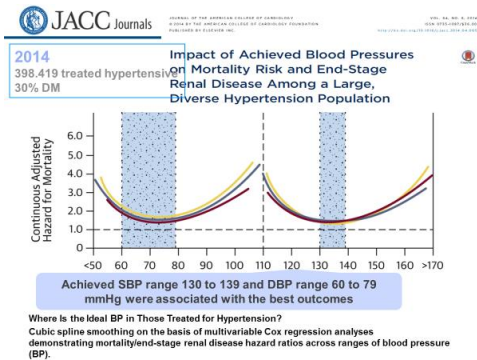
Data from the National Health Interview Survey, the National Hospital Discharge Survey, the U.S. Renal Data System, and the U.S. National Vital Statistics System



Gregg, NEJM 2014

chronic kidney disease and the correlation between RAAS-I and renal protection. In order to answer to the first key point, Prof. Pontremoli presented interesting data taken from some clinical trials runned in hypertensive type 2 diabetes patients. Based on these

Prof Pontremoli from Italy spoke about the management of hypertensive patients with diabetes and chronic renal disease, by highlighting that in patients affected by diabetes, the prevalence of end stage renal disease is not decreased in the last 20 years. The speaker pointed to two major key points: the ideal BP target to be achieved in patients with



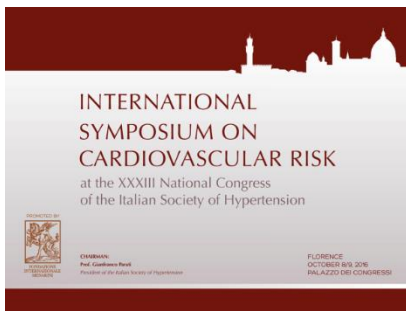
data the speaker highlighted the importance to find a good balance between the levels of blood pressure control obtained with the treatment and the indices of renal function. About the second key point related to RAAS-inhibitors, the speaker highlighted the correlation between these drugs and the renal protection. In conclusion Prof. Pontremoli pointed out that BP control and RAAS-I, linked to the glycometabolic control, remain the cornerstones of renal protection.

Original Article  
**CKD and achievement of recommended therapeutic targets in T2DM**  
The AMD-Annlis database  
De Cosmo S, Pontremoli R, et al. NDT 2015

n (%)	Alb+/-eGFR- 70779 (60.6)	Alb+/-eGFR+ 14644 (12.5)	Alb+/-eGFR- 21484 (18.4)	Alb+/-eGFR+ 9470 (8.5)
HbA1c <7% (%)	53.4	48.4	43.6	42.0
LDL <100 mg/dL (%)	49.0	52.7	52.0	55.4
SBP/DBP <140/90 mmHg (%)	27.1	28.8	28.2	22.4
SBP/DBP <140/85 mmHg (%)	48.0	45.5	38.2	37.5
Patients with normoalbuminuria				
SBP/DBP <140/90 mmHg (%)	50.4	47.0		
Patients with high albuminuria				
SBP/DBP <140/80 mmHg (%)			13.2	13.6
Lipid-lowering treatment (%)	58.0	68.1	63.0	66.8
Treatment with statins (%)	53.7	58.0	58.8	60.5
Treatment with thiazides (%)	2.7	4.3	2.7	3.9
Anti-hypertensive treatment (%)	67.2	82.5	78.8	81.1
Treatment with ACE-I/ARBs (%)	57.5	74.4	70.3	77.5
Angiotensin (%)	30.0	41.7	35.5	45.0
Anti-diabetic Rx				
Diet (%)	6.2	4.9	3.3	2.6
OAD (%)	68.7	54.2	62.3	42.1
OAD + insulin (%)	14.8	17.3	22.0	20.5
Insulin (%)	10.2	23.5	12.4	34.9

- Is albuminuria an essential condition for end stage renal disease in diabetic patients?
- What's about the combined angiotensin inhibition for the treatment of diabetic nephropathy?
- What are the main changes in diabetes-related complications in the US from 1990 to 2010?
- What are the main effects of intensive blood pressure lowering on the progression of Chronic Kidney Disease?

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