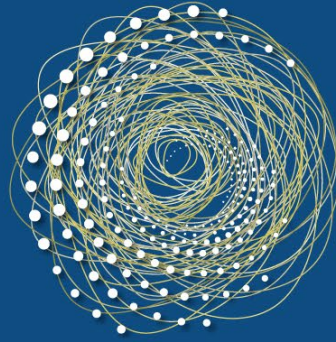


31^ο Έτος

Ημέρες Παθολογίας 2023

"Διλήμματα στην Κλινική Παθολογία"

Ξενοδοχείο
Crowne Plaza
Αθήνα



30 Μαρτίου έως
01 Απριλίου
2023

Περίπτωση 2: Ασθενής με Υπέρταση Λευκής Μπλούζας

Αντώνιος Αργύρης
Παθολόγος
Επιμελητής Β', ΓΝΑ Αλεξάνδρα
ESH Hypertension Specialist

- Γυναίκα 56 ετών
- Πρώην καπνίστρια (26 pack-years)
- BMI: 28 kg/m²
- Δεν ασκείται
- Εμμηνόπαυση στα 52 έτη
- Ατομικό Αναμνηστικό: δυσλιπιδαιμία – άνευ αγωγής

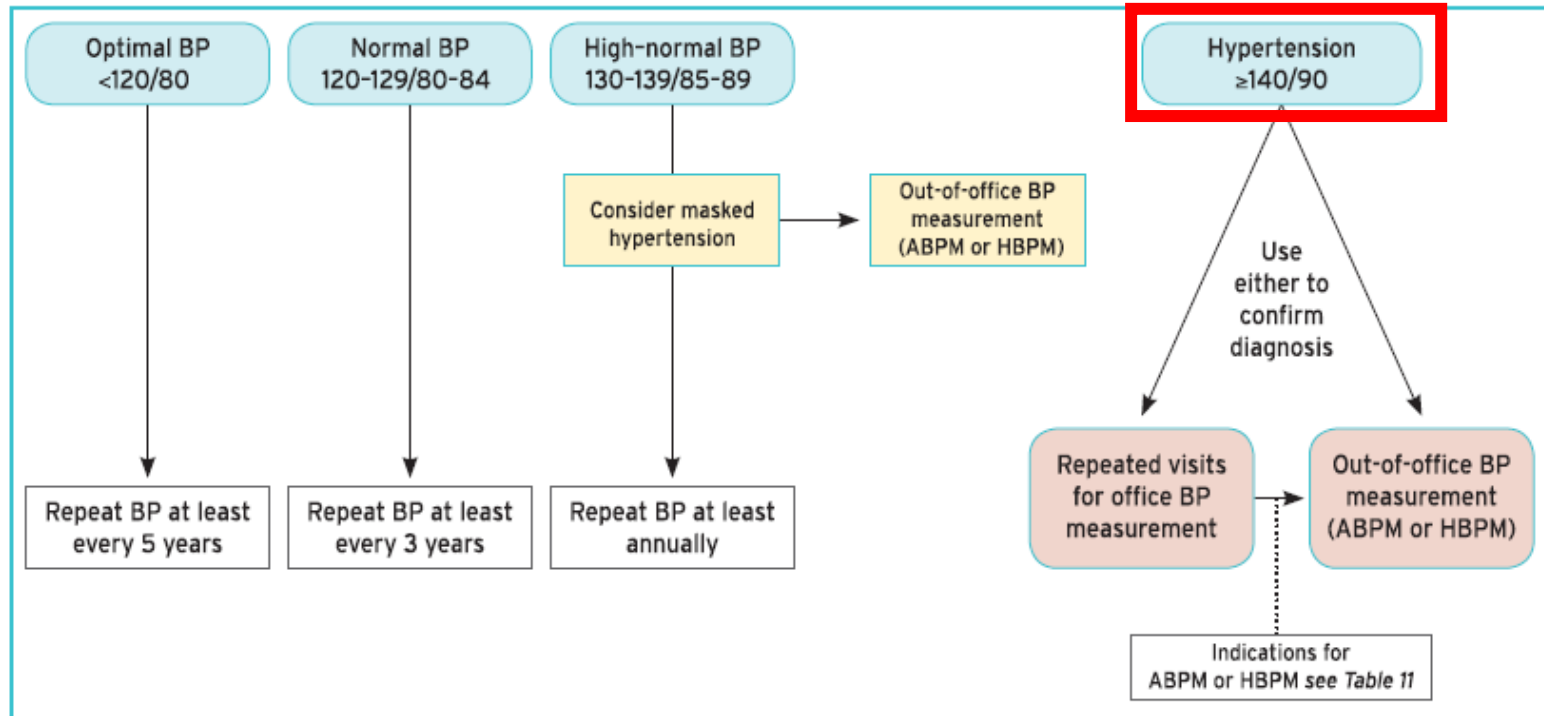
- Προσήλθε στο Ιατρείο Υπέρτασης λόγω ανεύρεσης σε τυχαία μέτρηση (μετά ψυχοπιεστικό γεγονός) => ΑΠ: 164/93 mm Hg
- ΑΠ ιατρείου (μέση τιμή 3 μετρήσεων): 148/79 mm Hg
- ΗΚΓ: SR, χωρίς εικόνα LVH

Table 3 Classification of office blood pressure^a and definitions of hypertension grade^b

Category	Systolic (mmHg)		Diastolic (mmHg)
Optimal	<120	and	<80
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 ^b	≥140	and	<90

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➤ Screening and diagnosis of hypertension

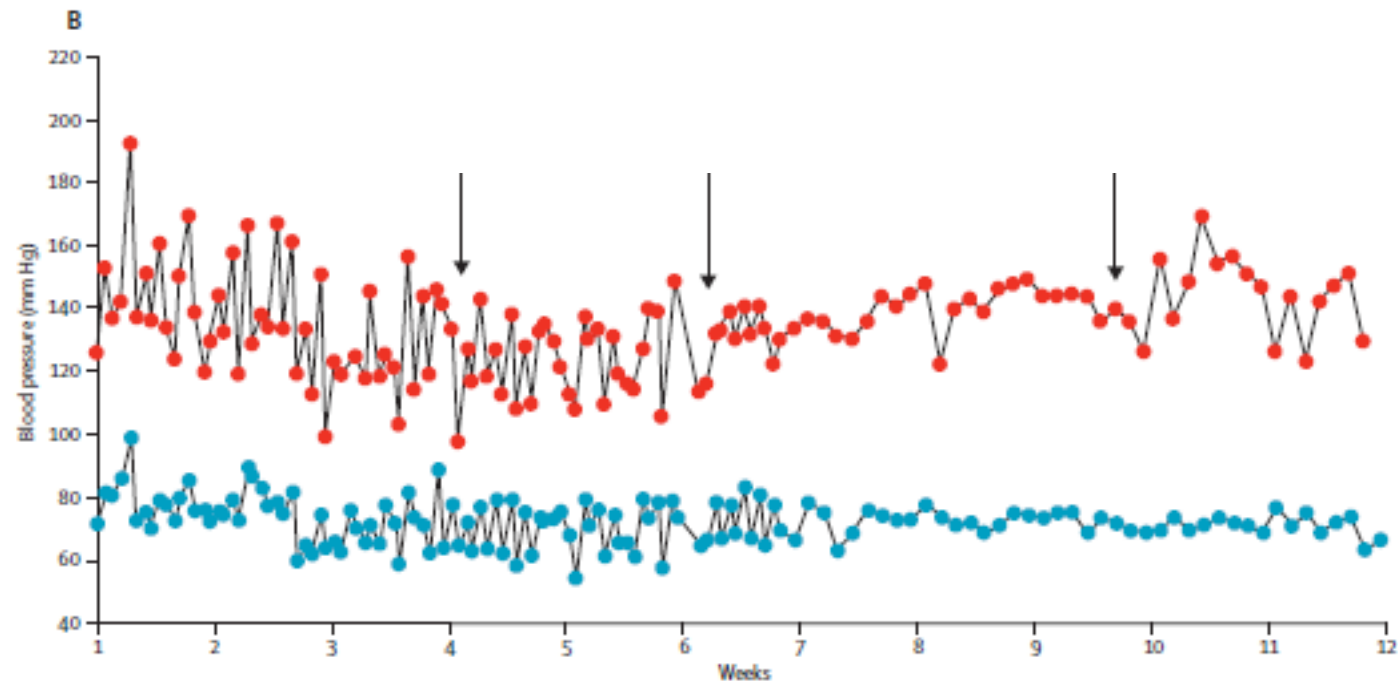


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Limitations of the usual blood-pressure hypothesis and importance of variability, instability, and episodic hypertension

Peter M Rothwell

Oxford Vascular Study

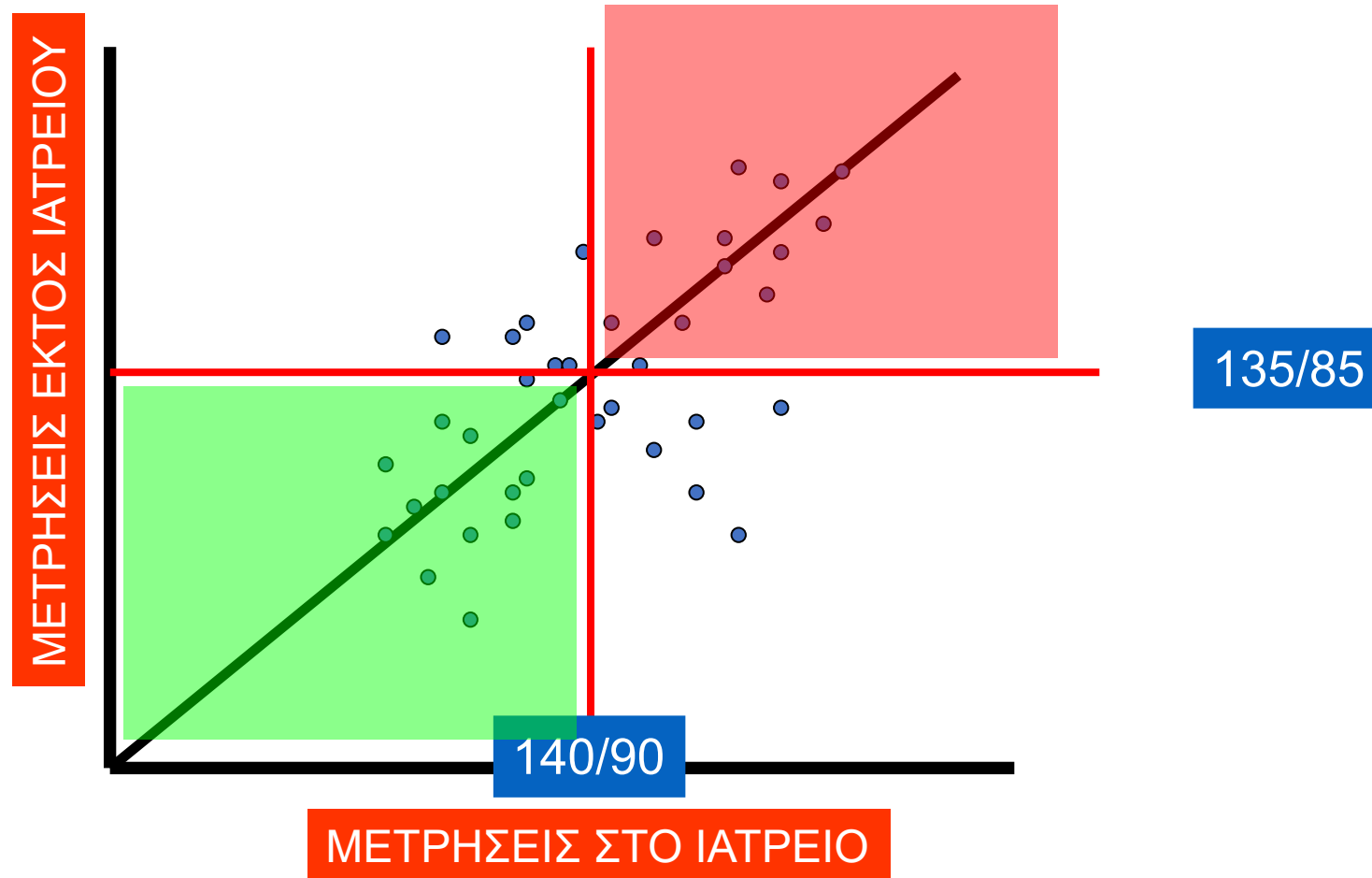


Lancet 2010

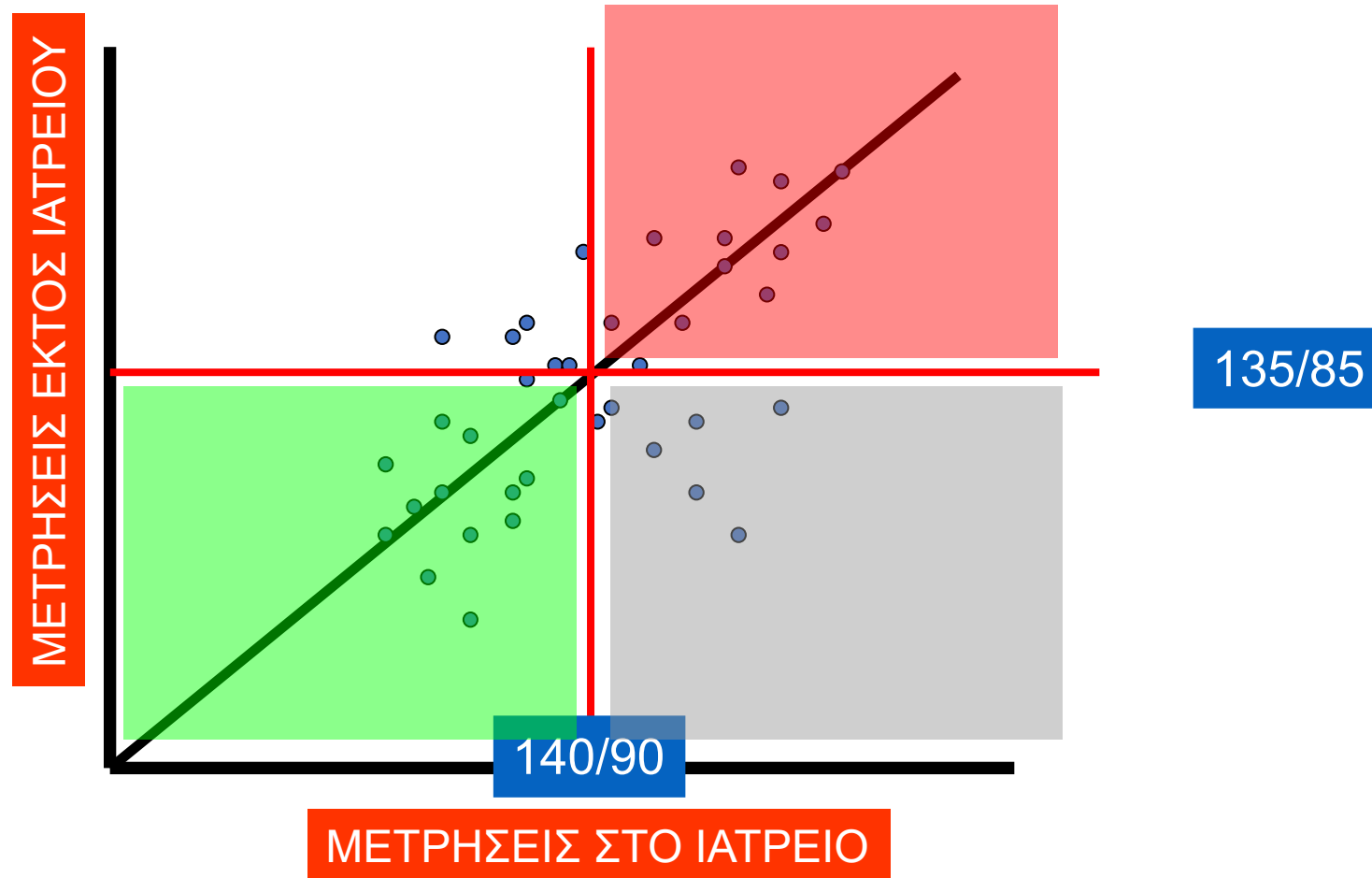
➤ Screening and diagnosis of hypertension

<p>It is recommended that the diagnosis of hypertension should be based on:</p> <ul style="list-style-type: none">• Repeated office BP measurements on more than one visit, except when hypertension is severe (e.g. grade 3 and especially in high-risk patients). At each visit, three BP measurements should be recorded, 1–2 min apart, and additional measurements should be performed if the first two readings differ by >10 mmHg. The patient's BP is the average of the last two BP readings.	I	C
<p>Or</p> <ul style="list-style-type: none">• Out-of-office BP measurement with ABPM and/or HBPM, provided that these measurements are logistically and economically feasible.	I	C
<p>Out-of-office BP (i.e. ABPM or HBPM) is specifically recommended for a number of clinical indications, such as <u>identifying white-coat and masked hypertension</u>, quantifying the effects of treatment, and identifying possible causes of side effects^{17,54,62,68,72} (e.g. symptomatic hypotension).</p>	I	A

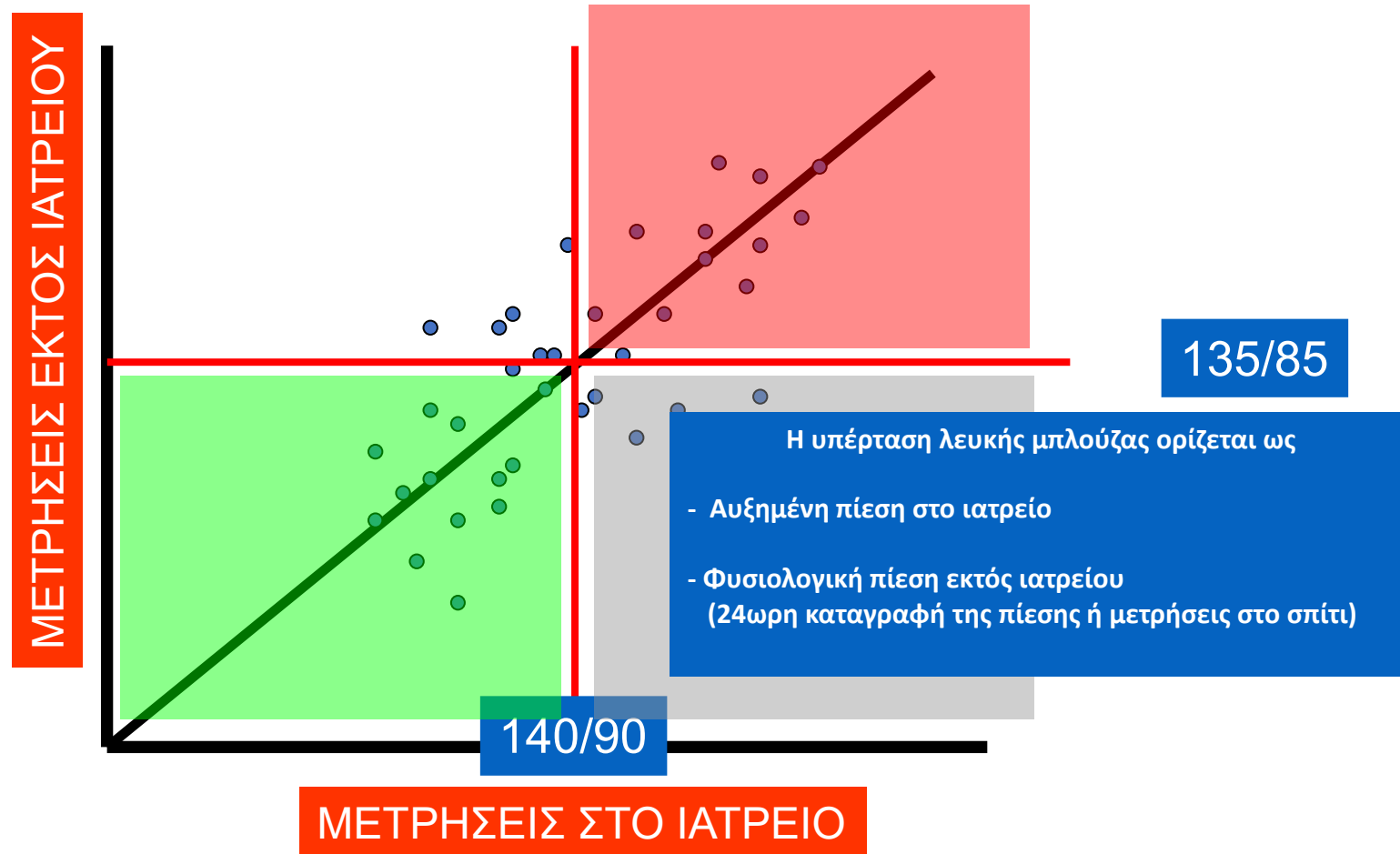
Διαγνωστικοί φαινότυποι στην υπέρταση



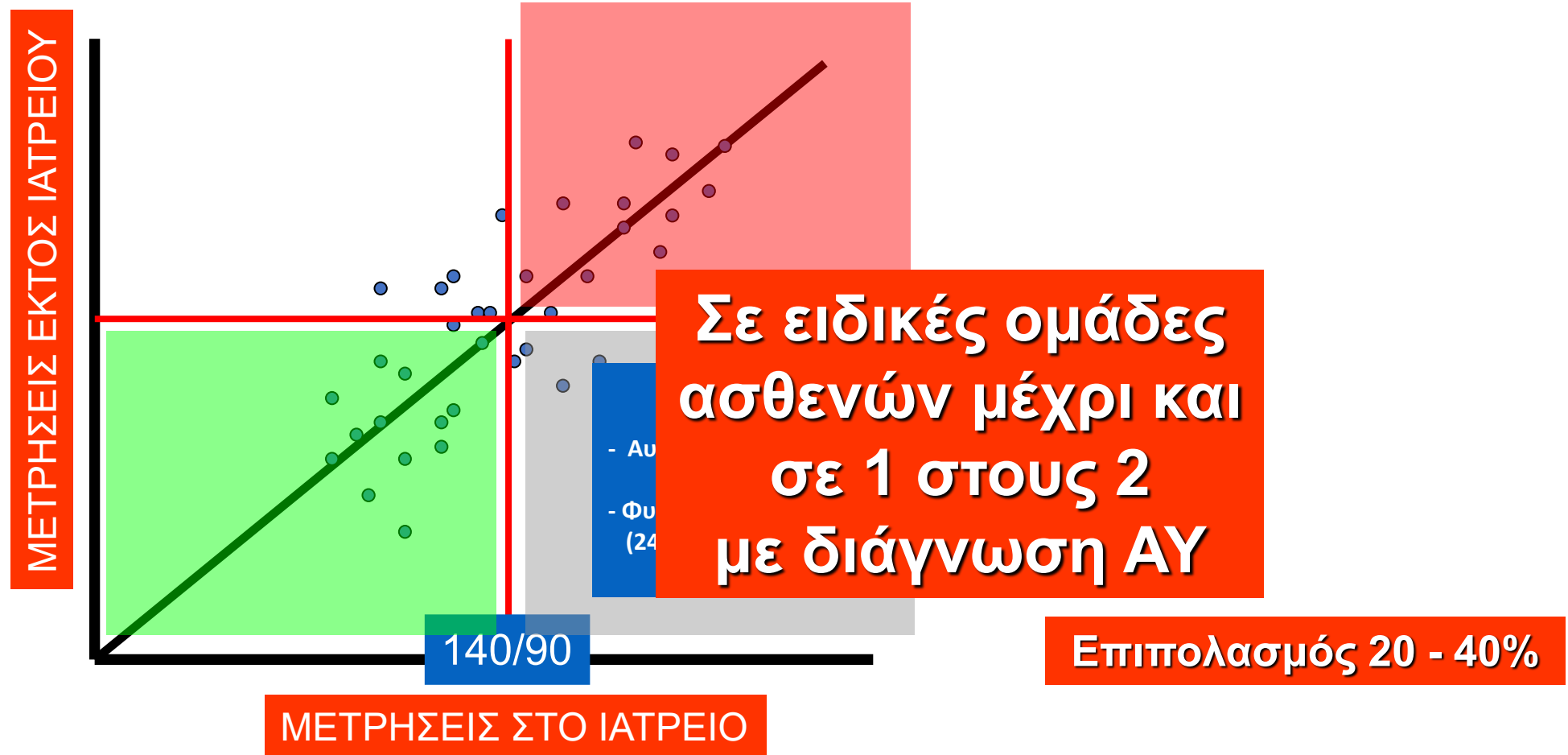
Διαγνωστικοί φαινότυποι στην υπέρταση



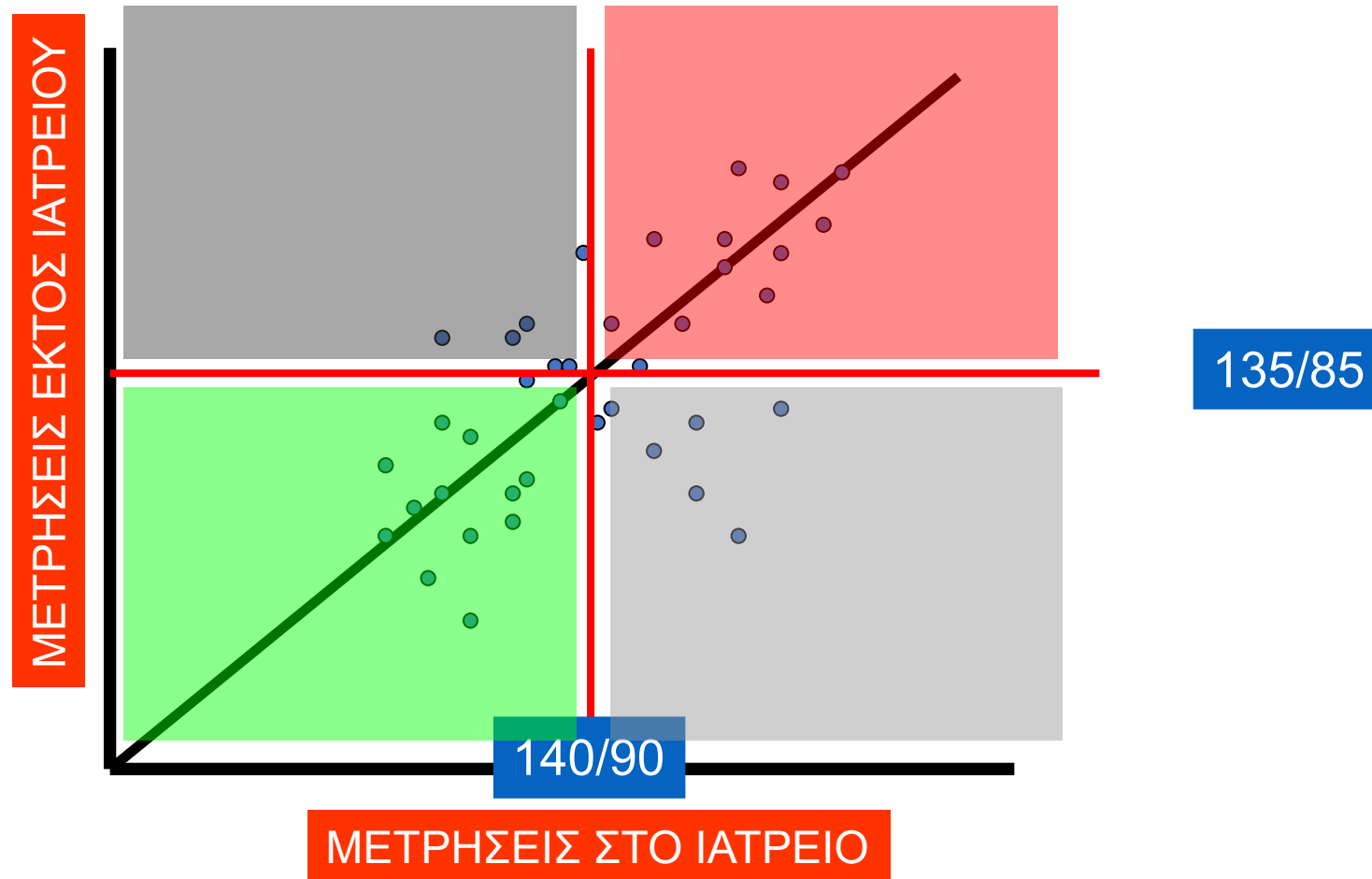
Διαγνωστικοί φαινότυποι στην υπέρταση



Διαγνωστικοί φαινότυποι στην υπέρταση



Διαγνωστικοί φαινότυποι στην υπέρταση



Διαγνωστικοί φαινότυποι στην υπέρταση

Συγκαλυμμένη υπέρταση ορίζεται ως

- Αυξημένη πίεση εκτός ιατρείου (24ωρη καταγραφή της πίεσης ή μετρήσεις στο σπίτι)
- Φυσιολογική πίεση στο ιατρείο

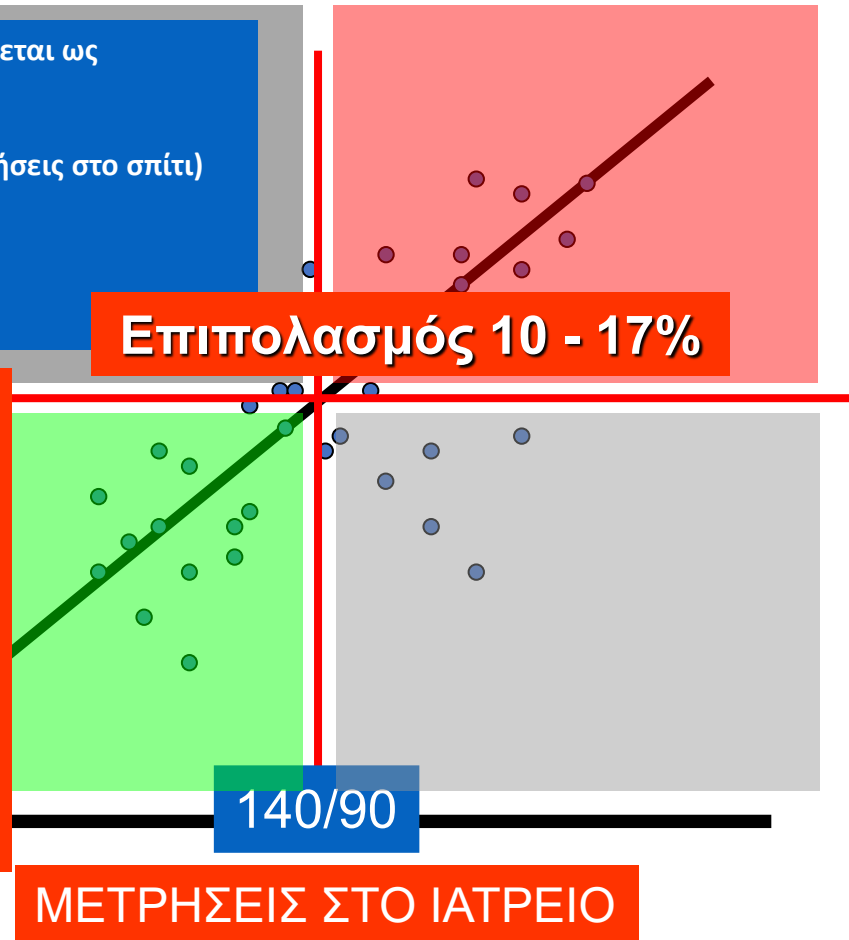
Επιπολασμός 10 - 17%

Σε ειδικές ομάδες ασθενών μέχρι και 1 στους 3 με διάγνωση φυσιολογικής ΑΥ

135/85

140/90

ΜΕΤΡΗΣΕΙΣ ΣΤΟ ΙΑΤΡΕΙΟ



➤ Ποια μεθοδολογία να προτιμήσω;

Table 10 Comparison of ambulatory blood pressure monitoring and home blood pressure monitoring

ABPM	HBPM
Advantages <ul style="list-style-type: none">● Can identify white-coat and masked hypertension● Stronger prognostic evidence● Night-time readings● Measurement in real-life settings● Additional prognostic BP phenotypes● Abundant information from a single measurement session, including short-term BP variability	Advantages <ul style="list-style-type: none">● Can identify white-coat and masked hypertension● Cheap and widely available● Measurement in a home setting, which may be more relaxed than the doctor's office● Patient engagement in BP measurement● Easily repeated and used over longer periods to assess day-to-day BP variability
Disadvantages <ul style="list-style-type: none">● Expensive and sometimes limited availability● Can be uncomfortable	Disadvantages <ul style="list-style-type: none">● Only static BP is available● Potential for measurement error● No nocturnal readings^a

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➤ **Καταγραφή ΑΠ στο σπίτι**

- ΗΒΡΜ: 132/77 mm Hg (μέσος όρος εβδομαδιαίας καταγραφής)

Εργαστηριακός έλεγχος

Γλυκόζη: 89 mg/dl

HbA1c: 5,6%

Ουρία: 36 mg/dl

Κρεατινίνη: 0,9 mg/dl

eGFR: 83 ml/min/1,73m²

K: 4,3 mEq/l

Na: 139 mEq/l

Ουρικό οξύ: 5,2 mg/dl

Ολική χοληστερόλη: 220 mg/dl

HDL: 39 mg/dl

LDL: 150 mg/dl

Τριγλυκερίδια: 155 mg/dl

TSH: 1,29 μIU/ml

- **ABPM**
 - 24hr: 129/77 mmHg
 - Day: 135/82 mmHg
 - Night: 118/68 mmHg

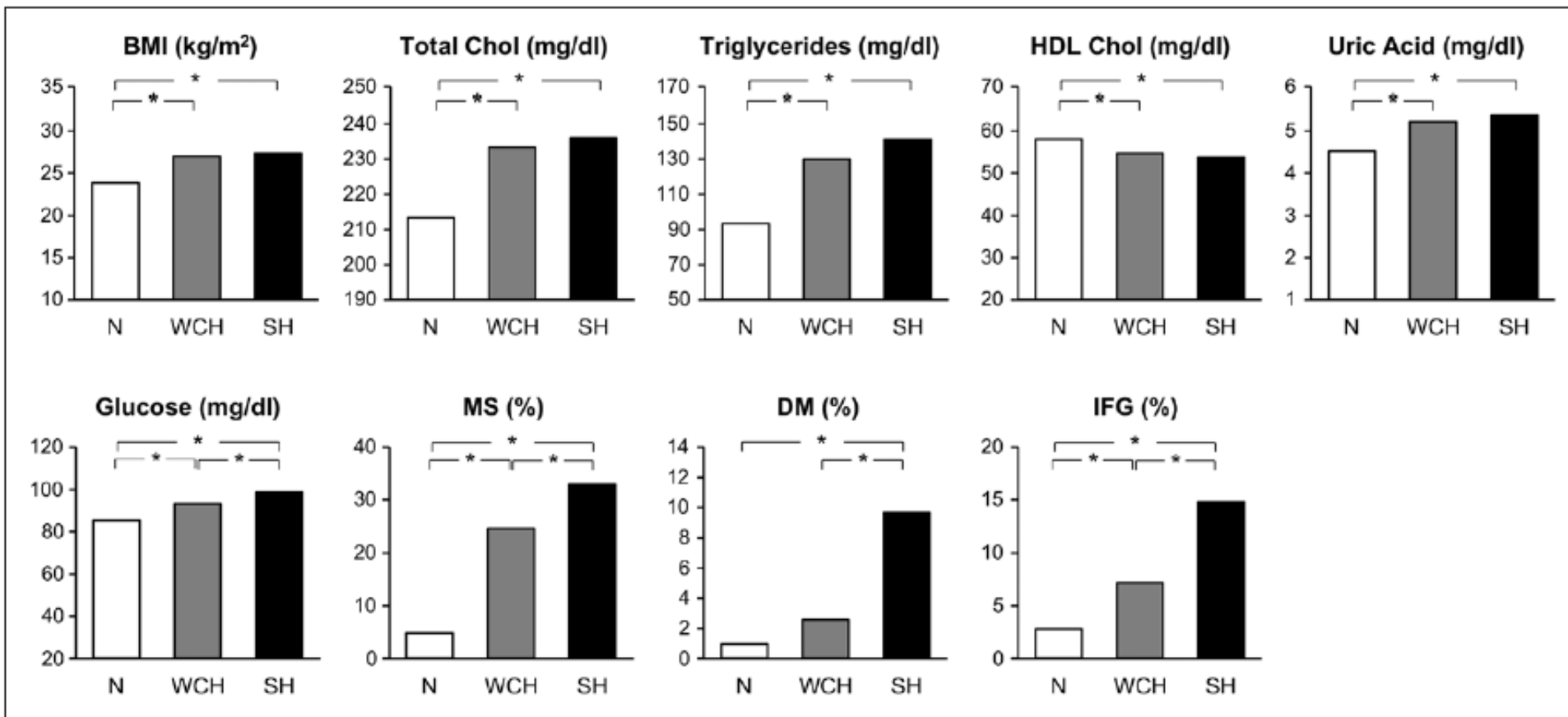
Table 9 Definitions of hypertension according to office, ambulatory, and home blood pressure levels

Category	SBP (mmHg)		DBP (mmHg)
Office BP ^a	≥140	and/or	≥90
Ambulatory BP			
Daytime (or awake) mean	≥135	and/or	≥85
Night-time (or asleep) mean	≥120	and/or	≥70
24 h mean	≥130	and/or	≥80
Home BP mean	≥135	and/or	≥85

©ESC/ESH 2018

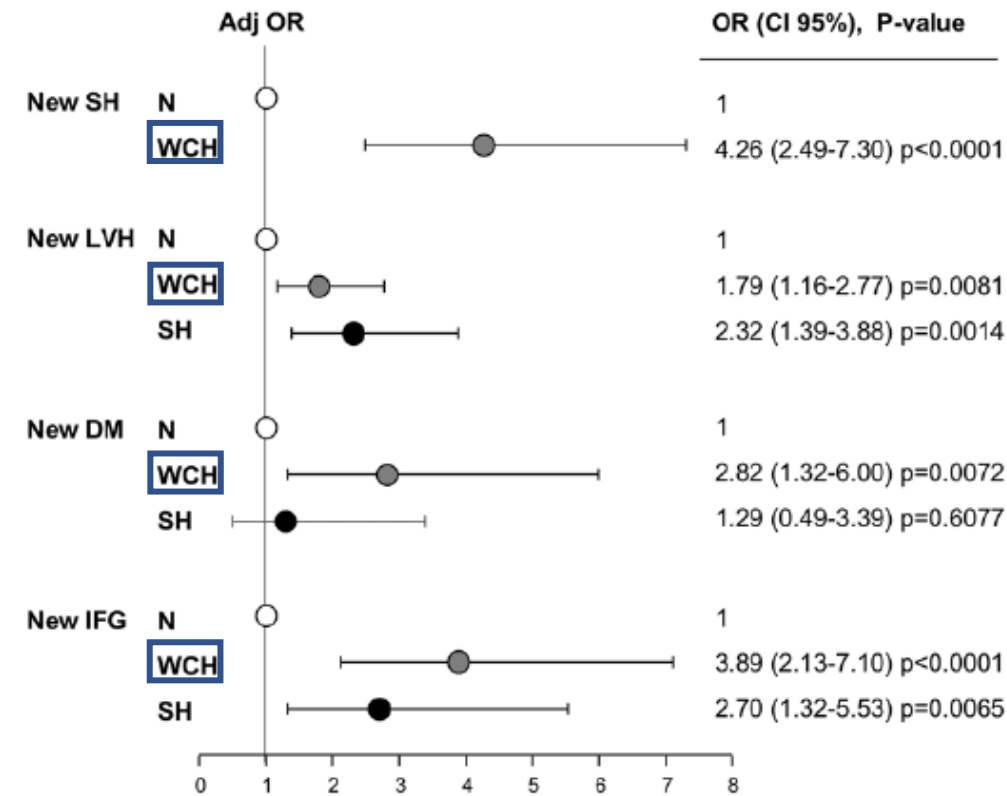
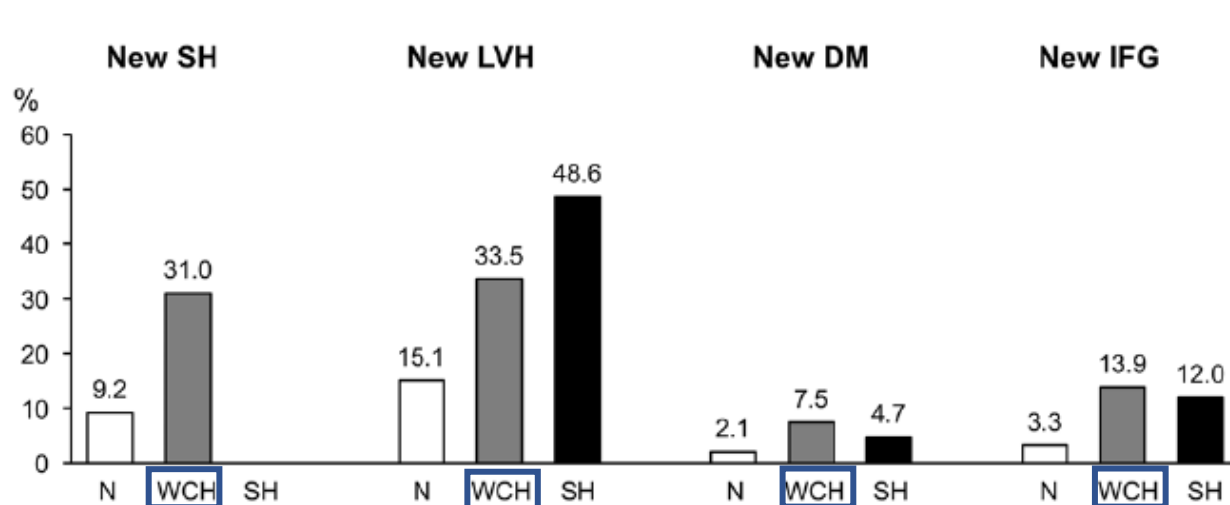
→ Υπέρταση Λευκής Μπλούζας

Υπέρταση λευκής μπλούζας – είναι αθώα;



Metabolic variables in normotensive (N), white-coat hypertensive (WCH), and sustained hypertensive (SH) subjects of the PAMELA (Pressioni Arteriose Monitorate e Loro Associazioni) population, that is, a sample of about 2100 subjects

Υπέρταση λευκής μπλούζας – είναι αθώα;

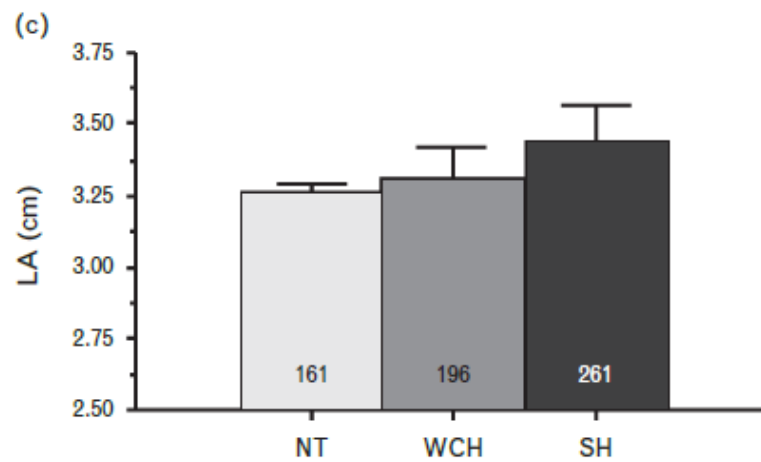
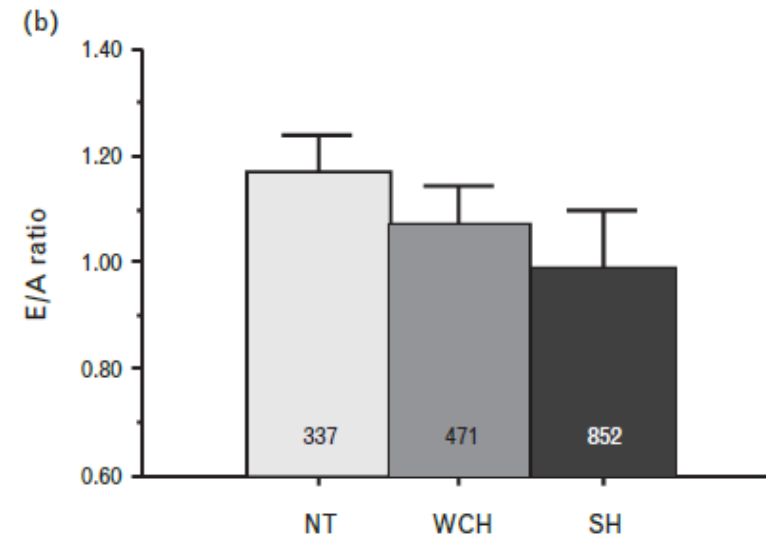
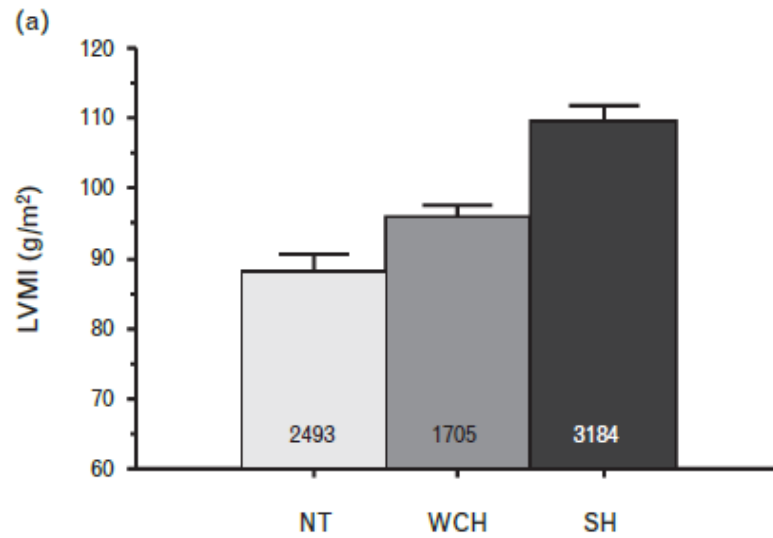


Increase in incidence (top) and adjusted risk (bottom) of new-onset sustained hypertension (SH), new-onset echocardiographic left ventricular hypertrophy (LVH), new-onset diabetes mellitus (DM), and a new-onset impaired fasting glucose (IFG) state in the PAMELA (Pressioni Arteriose Monitorate e Loro Associazioni) population sample 10 y after the initial survey.

White-coat hypertension, as defined by ambulatory blood pressure monitoring, and subclinical cardiac organ damage: a meta-analysis

Cesare Cuspidi^{a,b}, Marta Rescaldani^c, Marijana Tadic^d, Carla Sala^c, Guido Grassi^{a,e}, and Giuseppe Mancina^{a,b}

Υπέρταση λευκής μπλούζας – είναι αθώα;

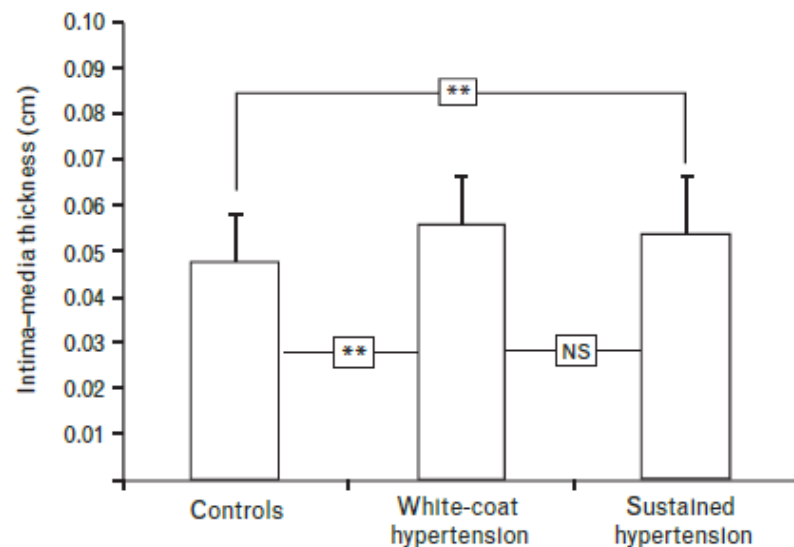


**Assessment of target-organ damage in adolescent white-coat
and sustained hypertensives**

Dénes Páll^a, Mária Juhász^a, Szabolcs Lengyel^a, Csilla Molnár^b, György Paragh^a,
Béla Fülesdi^b and Éva Katona^a

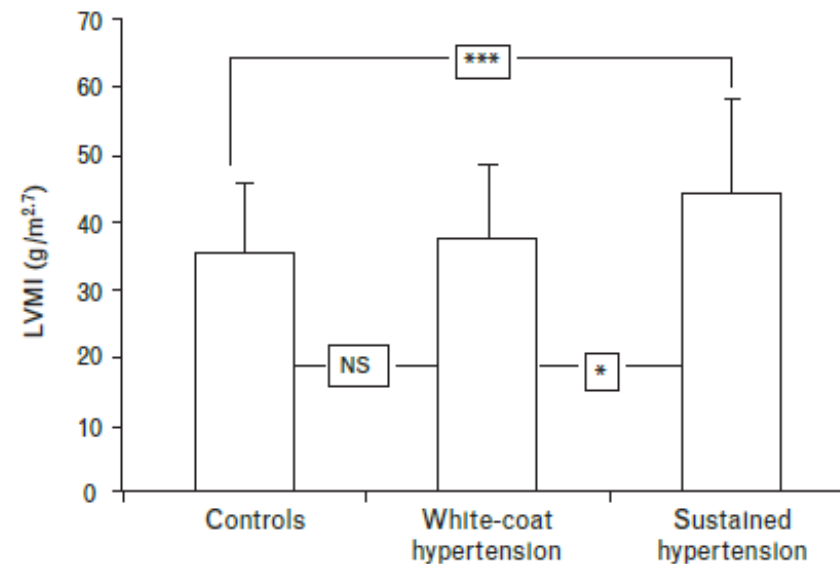
Υπέρταση λευκής μπλούζας – είναι αθώα;

Fig. 1



Intima-media thickness of the common carotid arteries (in cm) in normotensive control persons, in white-coat and in sustained hypertensive adolescents. Means and standard deviations are shown. ** indicates $P < 0.01$.

Fig. 2



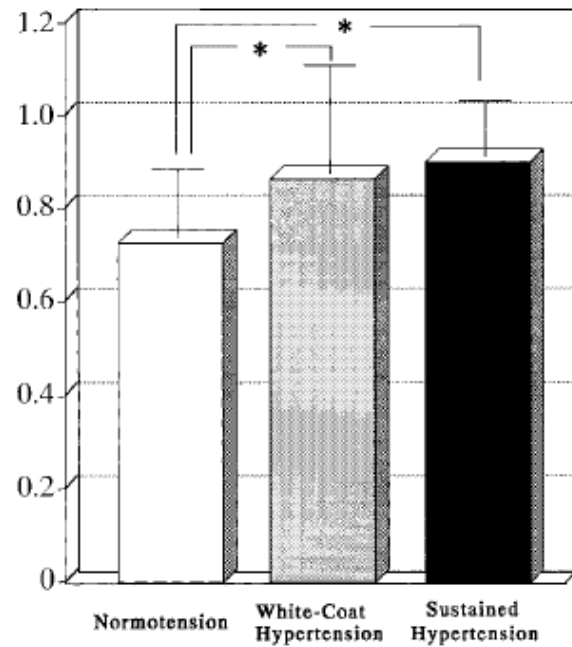
Left ventricular mass index (in g/m^{2.7}) in normotensive control persons, in white-coat and in sustained hypertensive adolescents. Means and standard deviations are shown.

White-Coat Hypertension Contributes to the Presence of Carotid Arteriosclerosis

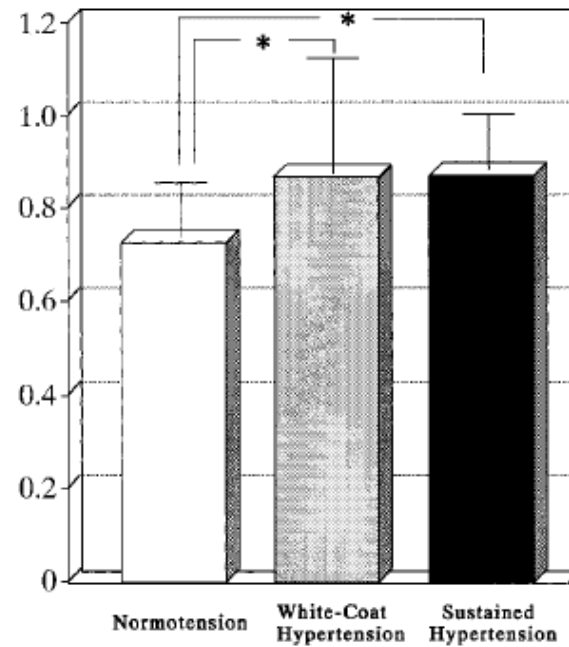
Takao NAKASHIMA, Shigeru YAMANO, Rie SASAKI, Shigetoshi MINAMI,
Kazuhiro DOI, Junko YAMAMOTO, Minoru TAKAOKA, and Yoshihiko SAITO

Υπέρταση λευκής μπλούζας – είναι αθώα;

Rt-IMT (mm)



Lt-IMT (mm)



Short- and Long-Term Incidence of Stroke in White-Coat Hypertension

Paolo Verdecchia, Gian Paolo Reboldi, Fabio Angeli, Giuseppe Schillaci, Joseph E. Schwartz,
Thomas G. Pickering, Yutaka Imai, Takayoshi Ohkubo, Kazuomi Kario

Υπέρταση λευκής μπλούζας – είναι αθώα;

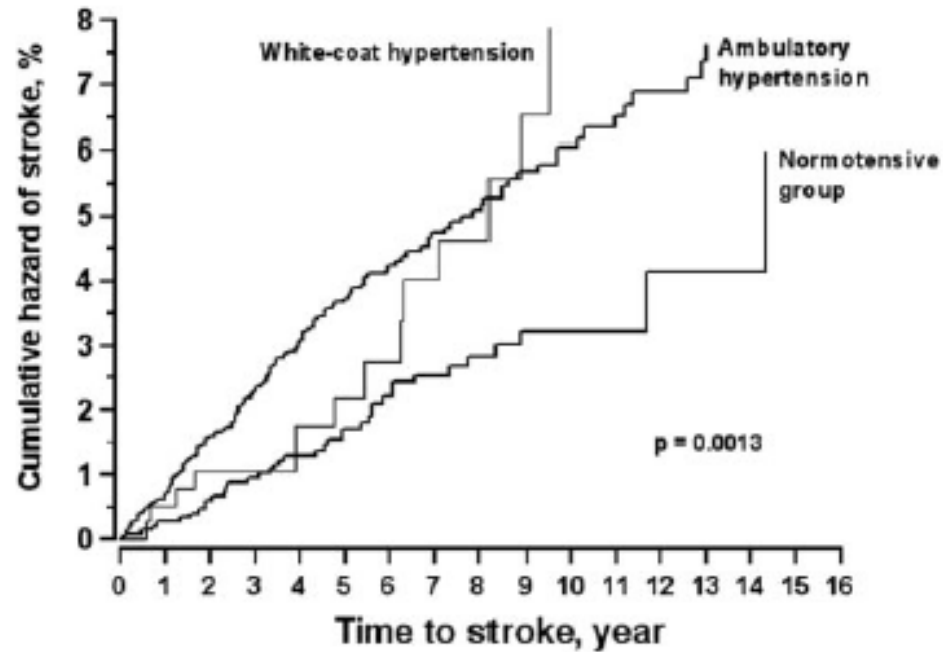


Figure 2. Cumulative hazard for stroke in the 3 groups (normotensive subjects, WCH, and ambulatory hypertension).

White coat hypertension is a cardiovascular risk factor: a 10-year follow-up study

PH Gustavsen, A Høegholm, LE Bang and KS Kristensen
Department of Internal Medicine, County Central Hospital, Næstved, Denmark

Υπέρταση λευκής μπλούζας – είναι αθώα;

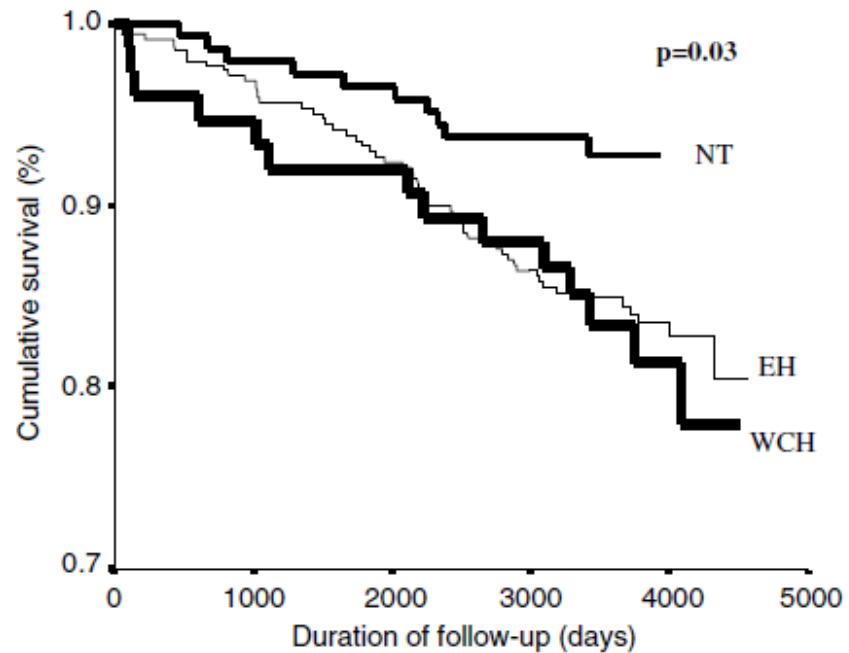
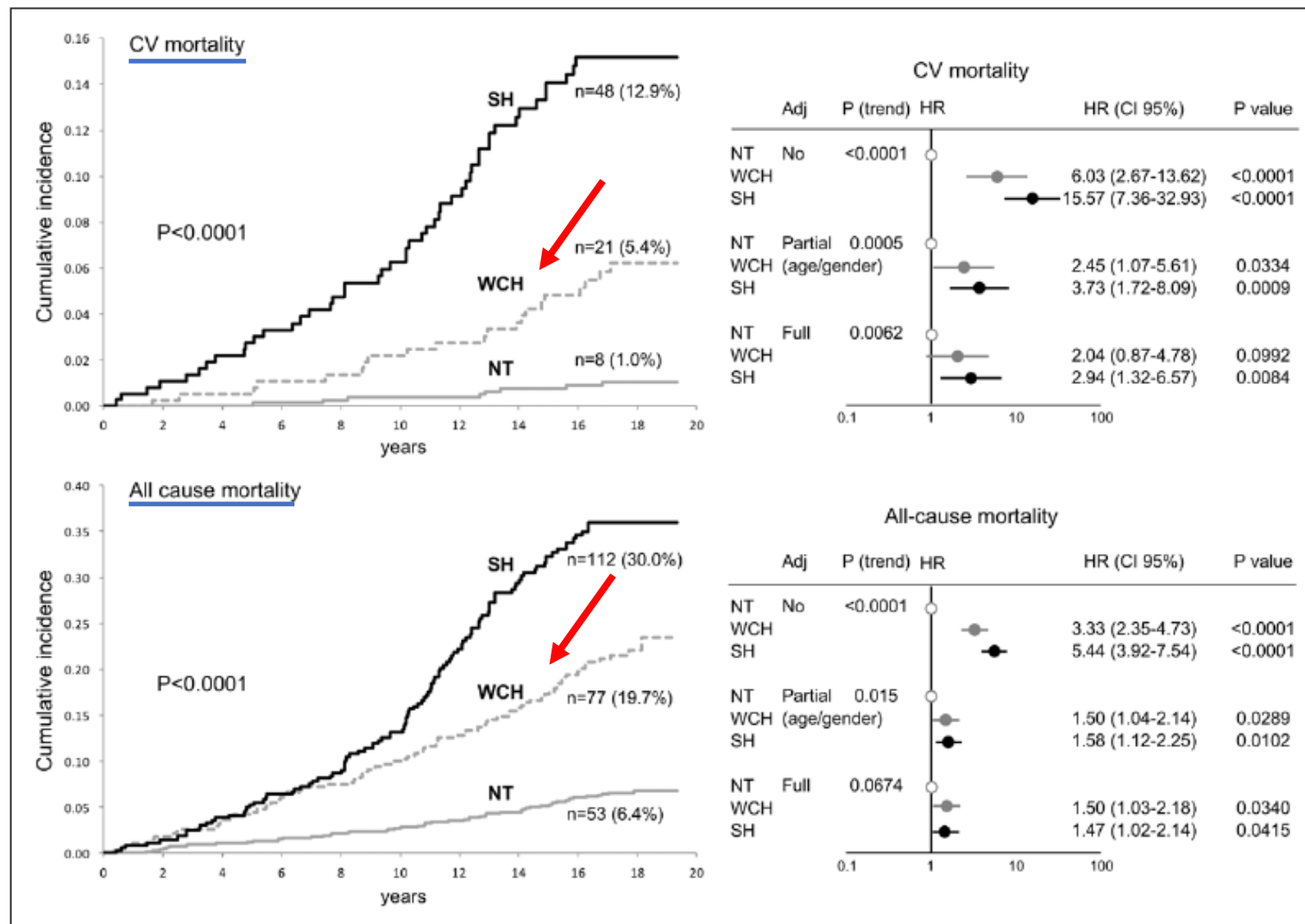


Figure 1 Kaplan–Meier survival curves of first cardiovascular events in the WCH, the EH and the NT groups ($P=0.03$, overall and between WCH and NT).

Υπέρταση λευκής μπλούζας – είναι αθώα;



Cumulative incidence (Kaplan-Meier curves) of cardiovascular (CV; upper left) and total mortality (lower left) in normotensive (NT), white-coat hypertensive (WCH), and sustained hypertensive (SH) subjects of the PAMELA study (Pressioni Arteriose Monitorate e Loro Associazioni).

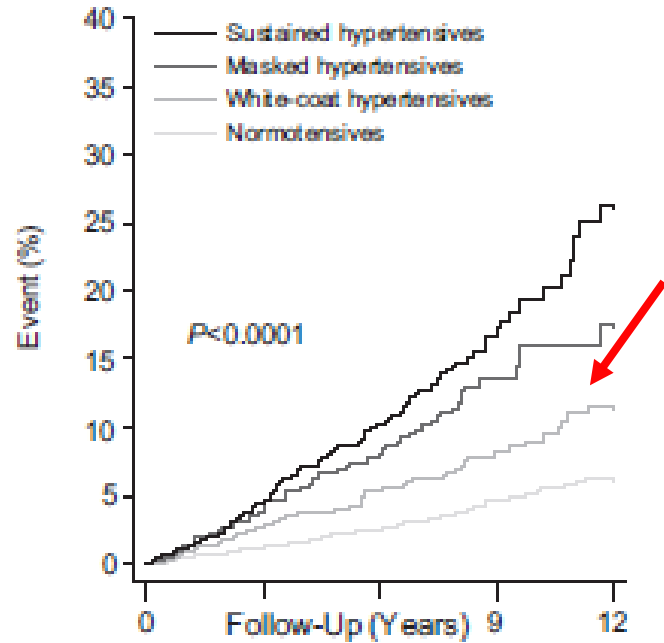
**Prognosis of White-Coat and Masked Hypertension
International Database of Home Blood Pressure in Relation
to Cardiovascular Outcome**

George S. Stergiou, Kei Asayama, Lutgarde Thijs, Anastasios Kollias, Teemu J. Niiranen,
Atsushi Hozawa, José Boggia, Jouni K. Johansson, Takayoshi Ohkubo, Ichiro Tsuji,
Antti M. Jula, Yutaka Imai, Jan A. Staessen;

on behalf of the International Database on HOme blood pressure in relation to Cardiovascular
Outcome (IDHOCO) Investigators

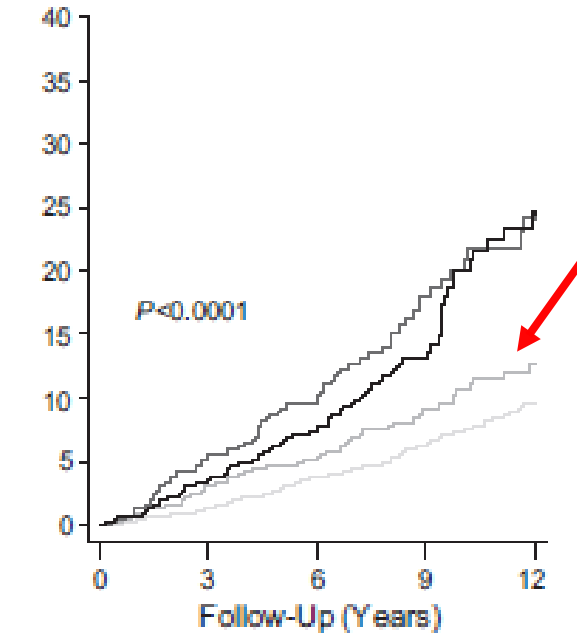
Υπέρταση λευκής μπλούζας – είναι αθώα;

A Cardiovascular Events, Untreated



Subgroup	Untreated Participants			
	Subjects N	Events n	Adjusted HR (95% CI)	P Value
Normotensives	2984	154	1.00	
White-coat HT	695	64	1.42 (1.06–1.91)	0.019
Masked HT	404	53	1.55 (1.12–2.14)	0.008
Sustained HT	924	141	2.13 (1.66–2.73)	<0.0001
Total	5007	412		

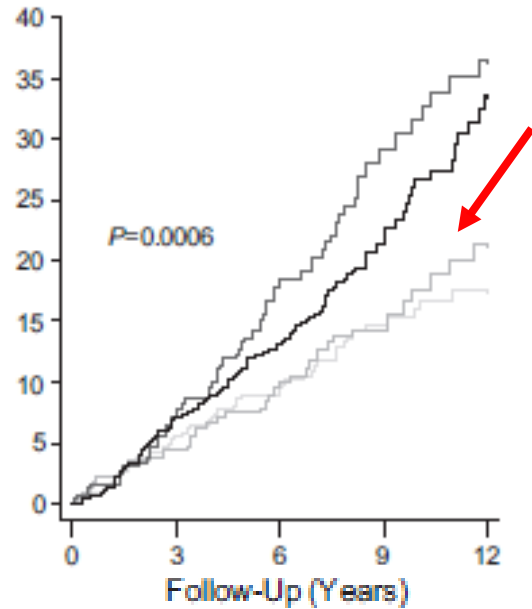
C Total Mortality, Untreated



Subgroup	Untreated Participants			
	Subjects N	Events n	Adjusted HR (95% CI)	P Value
Normotensives	2984	239	1.00	
White-coat HT	695	75	1.13 (0.87–1.46)	0.37
Masked HT	404	76	1.36 (1.04–1.77)	0.024
Sustained HT	924	130	1.34 (1.07–1.68)	0.012
Total	5007	520		

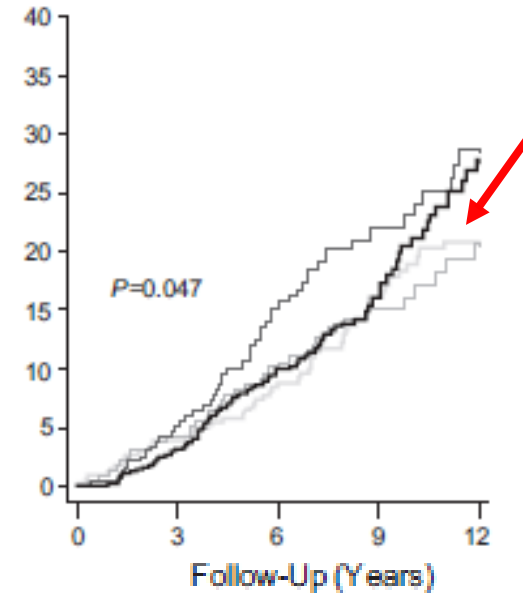
Υπέρταση λευκής μπλούζας – τη Θεραπείω;

B Cardiovascular Events, Treated



Treated Participants			
Subjects N	Events n	Adjusted HR (95% CI)	<i>P</i> Value
328	57	1.54 (1.11–2.14)	0.01
328	57	1.00	
230	45	1.16 (0.79–1.72)	0.45
232	66	1.76 (1.23–2.53)	0.002
661	134	1.40 (1.02–1.93)	0.039
1451	302		

D Total Mortality, Treated



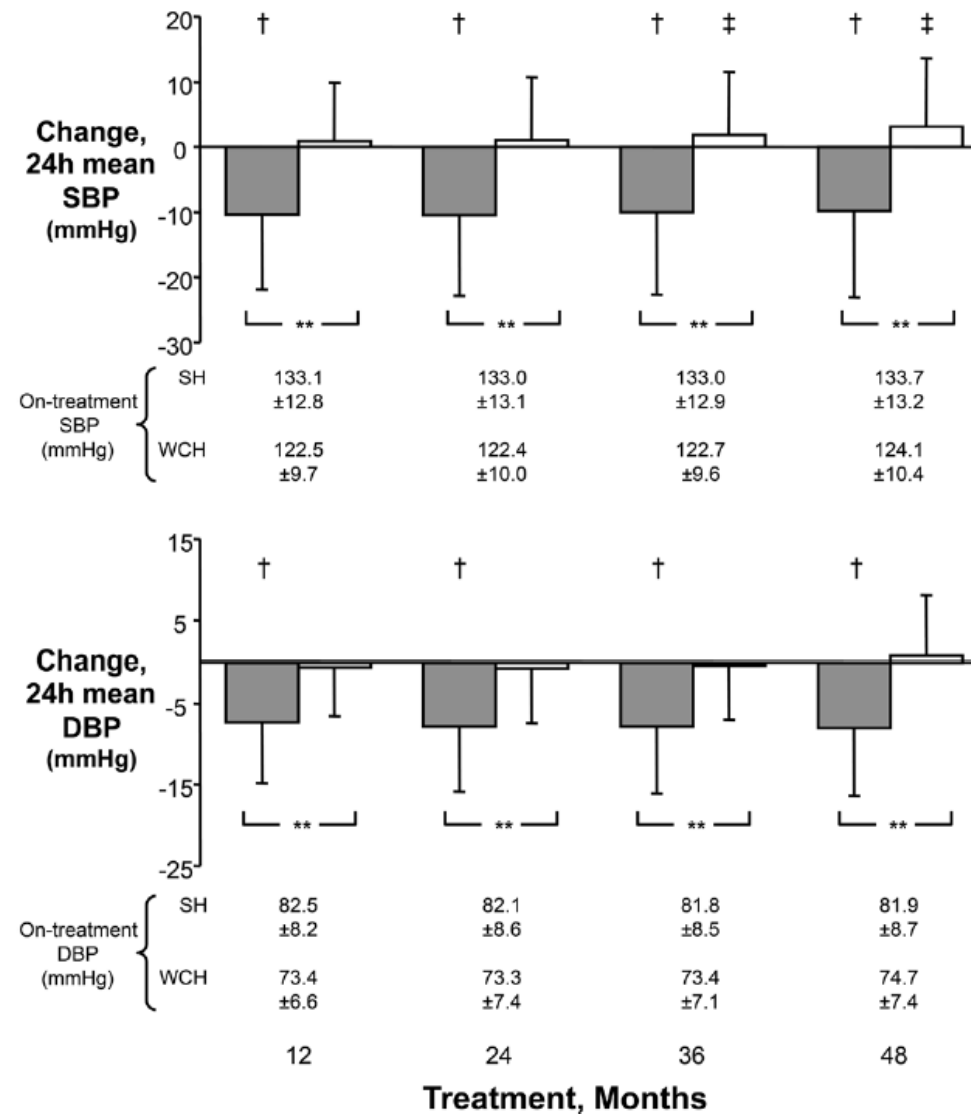
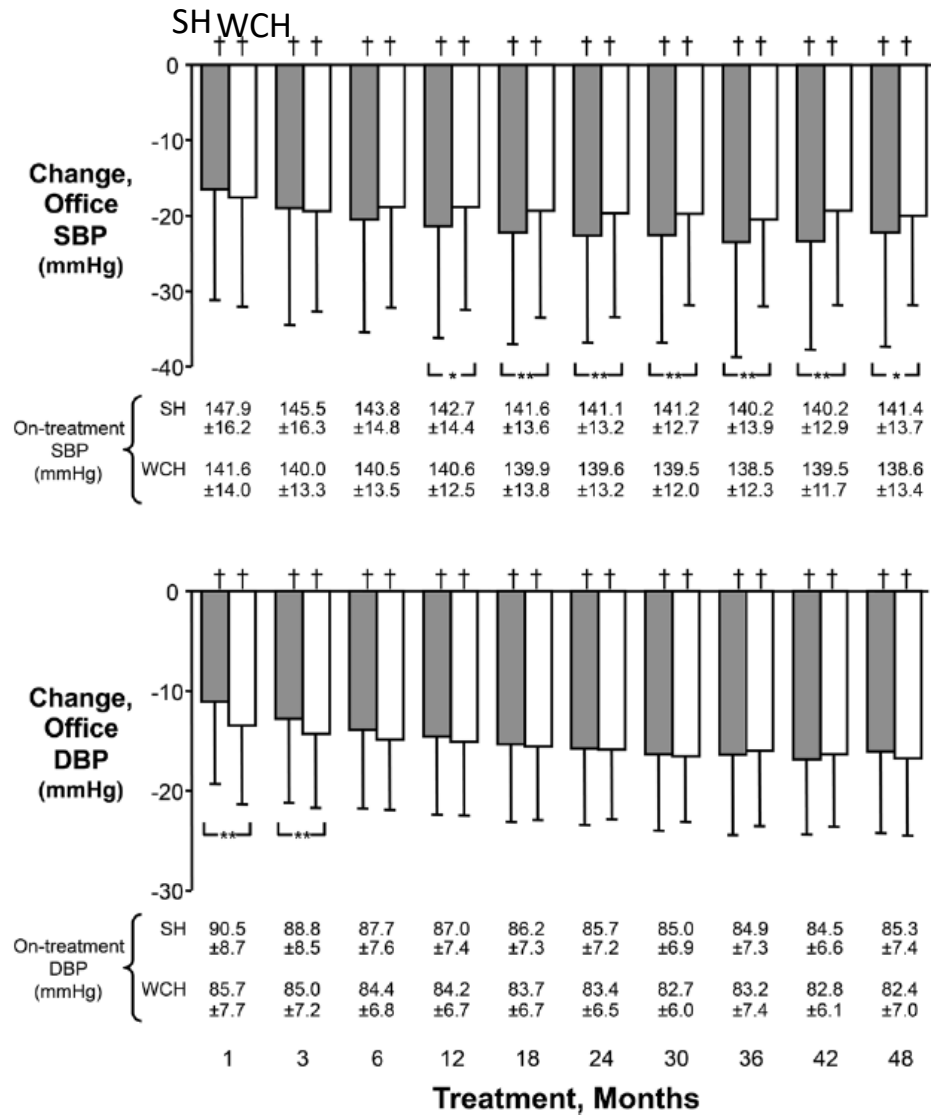
Treated Participants			
Subjects N	Events n	Adjusted HR (95% CI)	<i>P</i> Value
328	62	1.10 (0.81–1.48)	0.55
328	62	1.00	
230	50	1.19 (0.82–1.73)	0.37
232	60	1.49 (1.04–2.14)	0.031
661	117	1.19 (0.87–1.64)	0.28
1451	289		

Effect of Long-Term Antihypertensive Treatment on White-Coat Hypertension

Giuseppe Mancia, Rita Facchetti, Gianfranco Parati, Alberto Zanchetti

ELSA trial

Υπέρταση λευκής μπλούζας – τη Θεραπείω;



Αξιολόγηση συνολικού καρδιαγγειακού κινδύνου

Treatment of CV risk factors associated with hypertension

Recommendations	Class ^a	Level ^b
CV risk assessment with the SCORE system is recommended for hypertensive patients who are not already at high or very high risk due to established CVD, renal disease, or diabetes. ³³	I	B

➤ SCORE: 4%

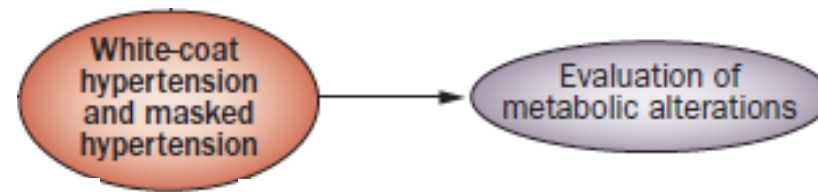
- Έλεγχος για βλάβη οργάνου στόχου
 - US καρδιάς: EF 55-60%, οριακή υπερτροφία αριστερής κοιλίας
 - Αλβ/κρεατ ούρων: 12 mg/gr Cr

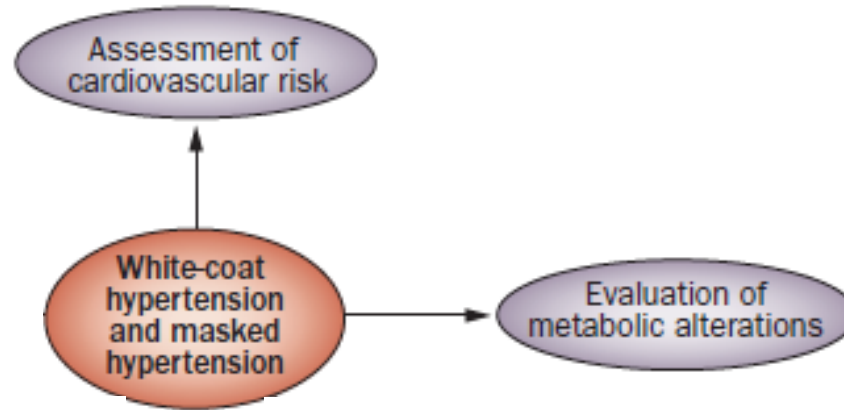
Table 5 Ten year cardiovascular risk categories (Systematic COronary Risk Evaluation system)

Very high risk	<p>People with any of the following:</p> <p>Documented CVD, either clinical or unequivocal on imaging.</p> <ul style="list-style-type: none"> ● Clinical CVD includes acute myocardial infarction, acute coronary syndrome, coronary or other arterial revascularization, stroke, TIA, aortic aneurysm, and PAD ● Unequivocal documented CVD on imaging includes significant plaque (i.e. $\geq 50\%$ stenosis) on angiography or ultrasound; it does not include increase in carotid intima-media thickness ● Diabetes mellitus with target organ damage, e.g. proteinuria or a with a major risk factor such as grade 3 hypertension or hypercholesterolaemia ● Severe CKD (eGFR < 30 mL/min/1.73 m²) ● A calculated 10 year SCORE of $\geq 10\%$
High risk	<p>People with any of the following:</p> <ul style="list-style-type: none"> ● Marked elevation of a single risk factor, particularly cholesterol > 8 mmol/L (> 310 mg/dL), e.g. familial hypercholesterolaemia or grade 3 hypertension (BP $\geq 180/110$ mmHg) ● Most other people with diabetes mellitus (except some young people with type 1 diabetes mellitus and without major risk factors, who may be at moderate-risk) <p style="border: 1px solid blue; padding: 2px; display: inline-block;">Hypertensive LVH</p> <p>Moderate CKD eGFR 30-59 mL/min/1.73 m²)</p> <p>A calculated 10 year SCORE of 5-10%</p>
Moderate risk	<p>People with:</p> <ul style="list-style-type: none"> ● A calculated 10 year SCORE of ≥ 1 to $< 5\%$ ● Grade 2 hypertension ● Many middle-aged people belong to this category
Low risk	<p>People with:</p> <ul style="list-style-type: none"> ● A calculated 10 year SCORE of $< 1\%$

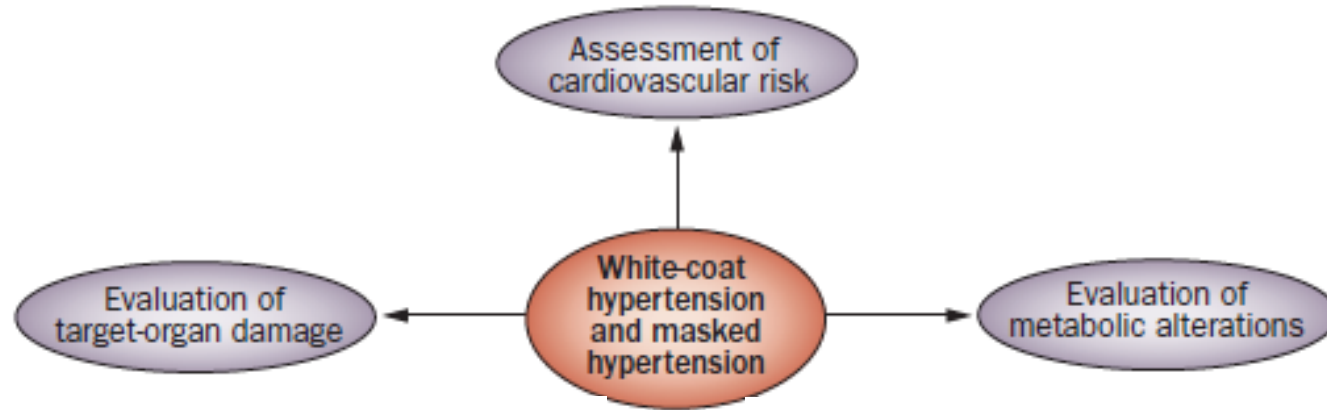
Management of white-coat hypertension		
Recommendations	Class ^a	Level ^b
In white-coat hypertensive patients, it is recommended to <u>implement lifestyle changes</u> aimed at reducing CV risk as well as <u>regular follow-up</u> with periodic out-of-office BP monitoring.	I	C
In patients with white-coat hypertension:		
<ul style="list-style-type: none"> • <u>Drug treatment</u> may be considered in <u>people with evidence of HMOD</u> or in <u>whom CV risk is high or very high.</u> 	IIb	C
<ul style="list-style-type: none"> • Routine drug treatment is not indicated. 	III	C

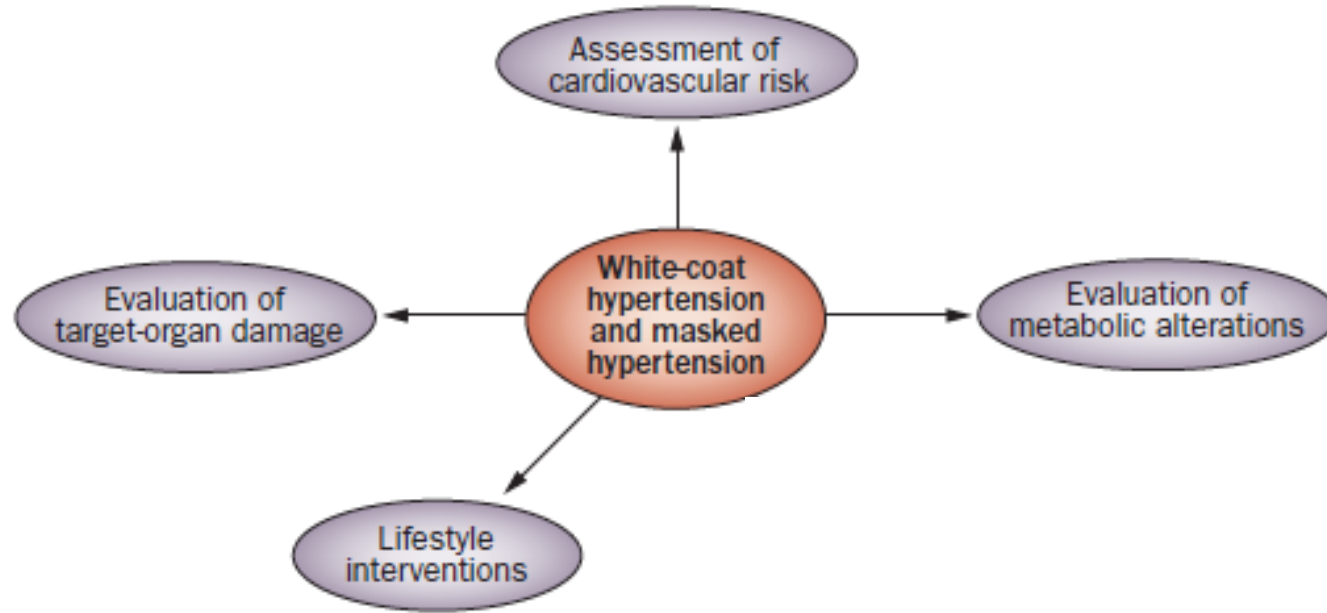


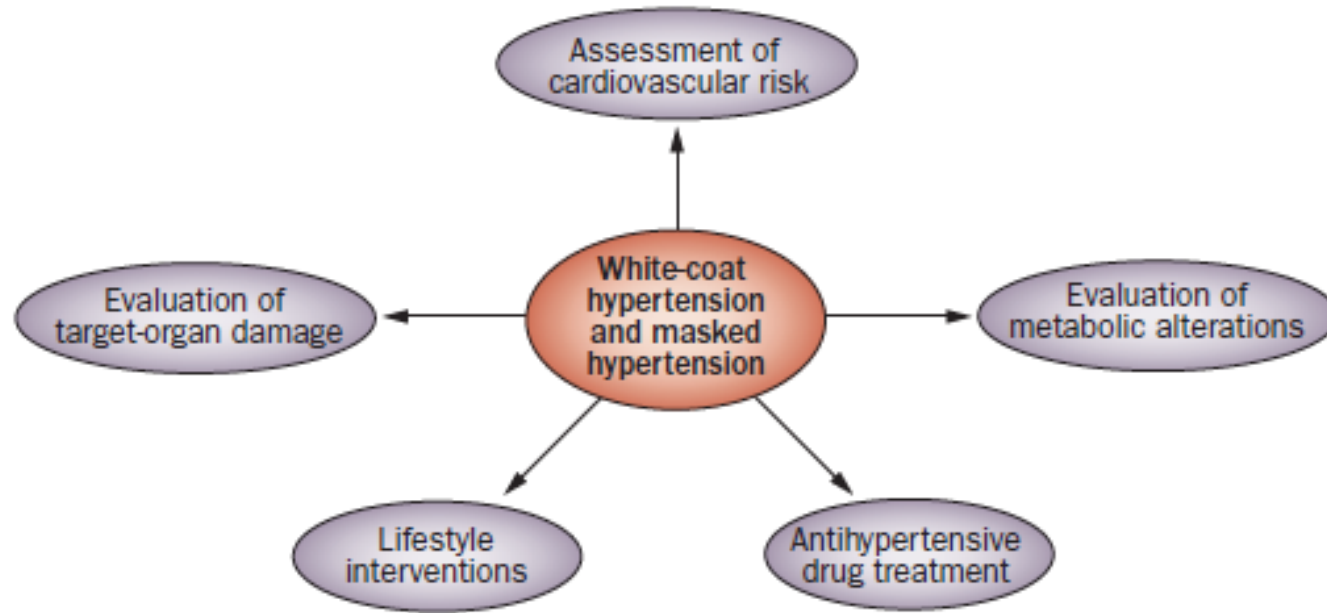




Διαχείριση υπέρτασης λευκής μπλούζας







- ✓ Σύσταση για αλλαγές τρόπου ζωής
- ✓ Έναρξη ατορβαστατίνης 40 mg
- ✓ Έναρξη περindoπρίλης 5 mg

- ✓ Σε επανεξέταση μετά 3 μήνες
 - ΑΠ ιατρείου: 140/76 mm Hg
 - HBPM: 129/72 mm Hg

- ✓ Η υπέρταση λευκής μπλούζας είναι ένας συχνός φαινότυπος
- ✓ Σχετίζεται με αυξημένο καρδιαγγειακό κίνδυνο
- ✓ Θεραπεία υπό συγκεκριμένες συνθήκες
- ✓ Συχνότερη παρακολούθηση με μετρήσεις εκτός ιατρείου