3ª Sessione
Ipertensione di difficile controllo
Moderatori: *Roberto Boero – Torino*
Claudio Pascale – Torino

14.45 L'ipertensione maligna
Erica Delsignore – Vercelli

14.57 Ipertensione da camice bianco: il ruolo del monitoraggio della pressione delle 24 ore
Michele Battista – Borgomanero (NO)

15.09 Polifarmacoterapia nel paziente anziano
Alessandro Croce – Milano

15.21 Ipertensione arteriosa: gender and age management
Daria Motta – Torino

15.33 Ipertensione non controllata di difficile diagnosi
Alessandro Lisi – Aosta

15.45 Il follow-up dopo urgenza ipertensiva
Martina Sanapo – Candiolo (TO)

15.57 Ipertensione arteriosa in gravidanza
Gian Paolo Fra – Novara

IPERTENSIONE MALIGNA

Erica Delsignore
SC Medicina Interna
Osp. Sant'Andrea - Vercelli

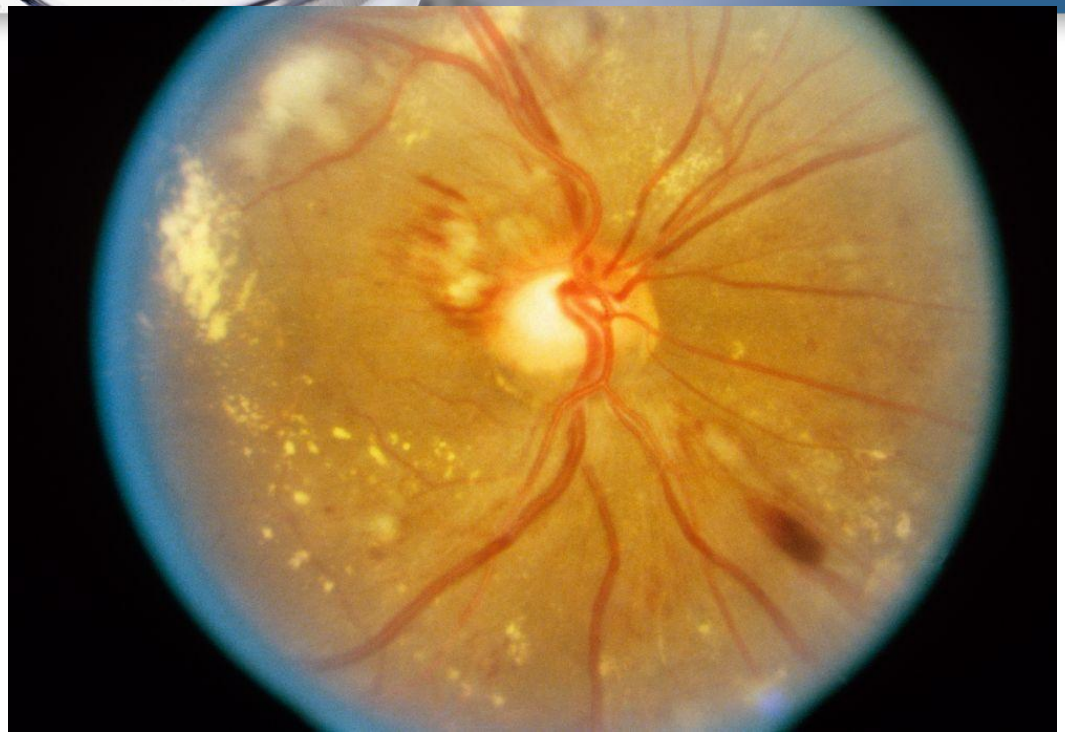
Donna 39 aa

- **APR:** 1 gravidanza complicata preeclampsia, parto prematuro a 7 mesi (neonato del peso di 800 g), menorragia → EP da 4 aa. Vitiligo

- **TERAPIA DOMICILIARE :** OCC drospirenone/etinilestradiolo 3/0,2 mg 1 cp er 21 gg/mese

- **APP:** Da una settimana malessere non meglio definibile, con calo del visus, dal 10/08 aggravato con minima cefalea e parestesie emilato sin della durata di qualche min poi regredite spontaneamente e poi recidivate. Nega dolore toracico, nausea, vomito, dispnea; alvo chiuso da 3 gg.

- **All'ingresso: PA 236/121 mmHg, fc 105 bpm,** SpO2 98% in aa, test 36°C



Ipertensione maligna o micro-angiopatia ipertensiva acuta = elevata PA + danno microvascolare

The most common presenting symptoms included visual disturbance in 25.6%, headaches in 12.0%, headaches and visual disturbance in 9.9%, heart failure in 7.9%, stroke or transient ischaemic attack in 7.0% and dyspnoea in 5.4%, although 9,5% patients were asymptomatic.
Lip, J Hypertens 1994

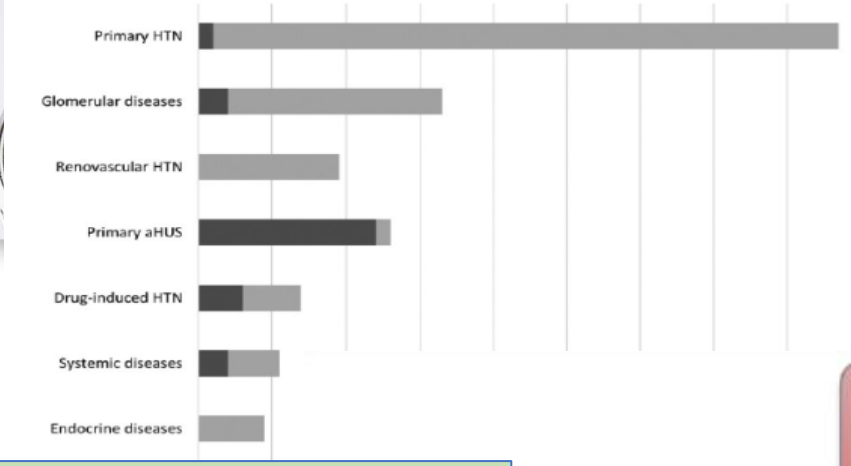
FUNDUS OCULI: papilla ottica normoescavata a margini netti, al polo posteriore alcune emorragiole ed essudati (di cui uno voluminoso lungo l'arcata vascolare temporale), alterato riflesso maculare retina periferica

TC CRANIO BASALE (10/08):
Non emorragie né ischemie in atto nè lesioni espansive in sede sovra e sottotentoriale, strutture della linea mediana in asse. Ventricoli simmetrici.

Tabella 3: dal sospetto di TMA alla diagnosi nel paziente che accede al Pronto Soccorso

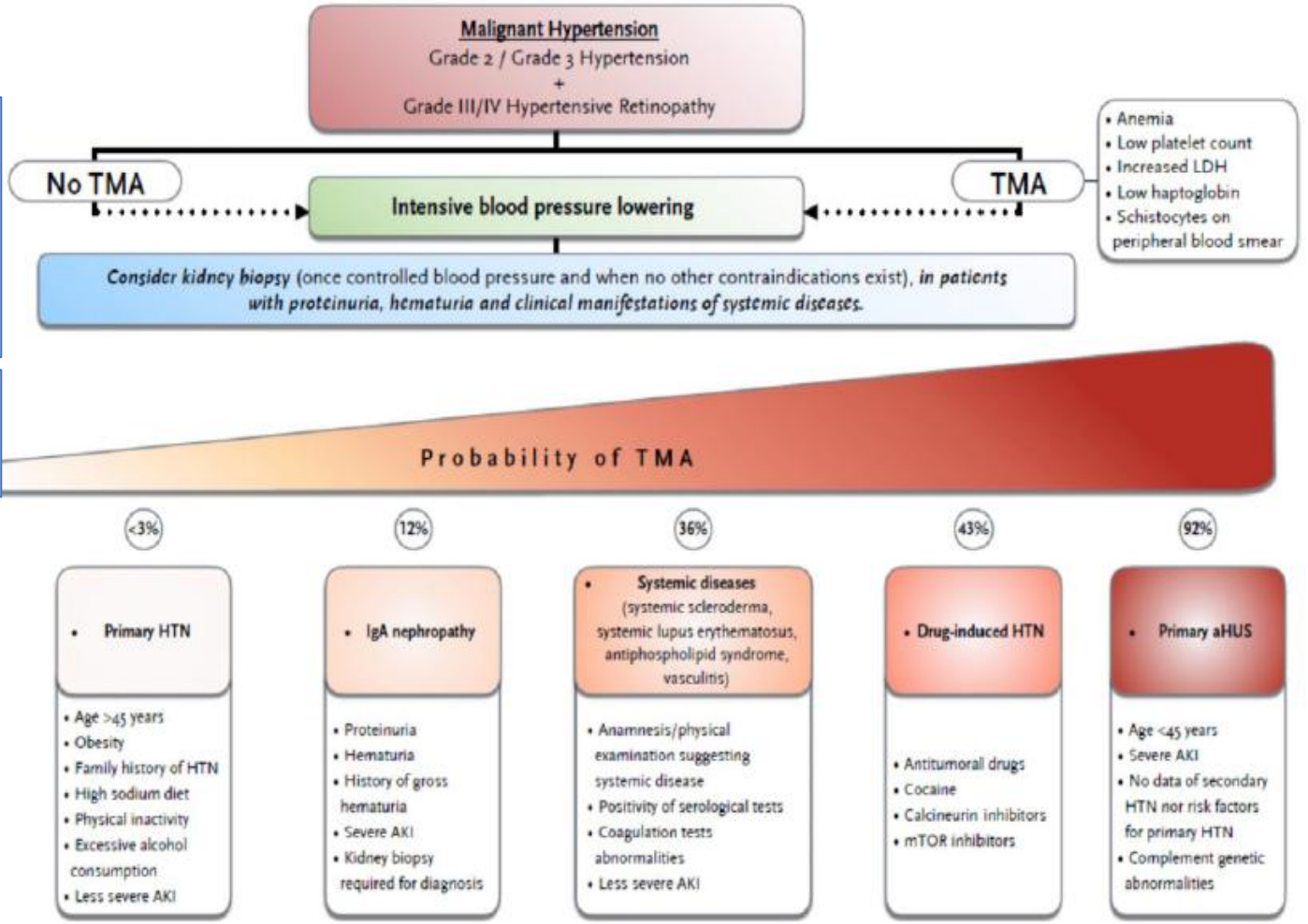
1. INDICI DI SOSPETTO	• Il **sospetto di TMA** si ha qualora siano presenti **TUTTI I PARAMETRI INDICATI** • NB: i parametri di laboratorio vanno rivalutati nel tempo in quanto i loro valori possono variare	• Piastrinopenia < 150.000 mm3 o < 25% del valore basale • > LDH • Hb < 10 g % • > creatininemia e/o anomalie urinarie • Tempo di protrombina, tromboplastina, antitrombina III nella norma
2. DATI CLINICO-ANAMNESTICI	Nel sospetto di TMA valutare se si associno **1 o più dei dati clinico-anamnestici** indicati	• Diarrea, diarrea ematica • Sintomi neurologici (confusione, cefalea, afasia, epilessia, disartria, calo del visus, encefalopatia, coma) • Iperpiressia • Ipertensione severa di recente insorgenza • Sintomi e segni cardiologici (infarto, aritmie, scompenso cardiaco) • Emorragia polmonare, petecchie, menometrorragie, ematuria, emorragie retiniche, epistassi • Gangrene delle estremità • Infezioni: HIV, polmonite, pepatite, ascessi, altri virus • Ittero • Edemi / Contrazione della diuresi • Anamnesi di neoplasia o neoplasie in atto • Anamnesi di malattie autoimmuni • Gravidanza (occorre valutare anche la settimana di gravidanza) • Anamnesi farmacologica: clopidrogel, ticlopidina, contraccattivi orali, ciclosporina, tacrolimus, rapamicina, everolimus, mitomicina, gemcitabina, cisplatino, Anti-VEGF, IFN Beta1, Paraquat
3. SE LA CLINICA E I DATI DI LABORATORIO SUPPORTANO IL SOSPETTO	Valutare	• Test di Coombs diretto monospecifico • Aptoglobina • Schistociti • Reticolociti
4. DIAGNOSI DI TMA	In caso di positività di • indici di sospetto + • 1 o più dei dati clinico anamnestici + • Dati di laboratorio di supporto	• Procedere con quanto indicato nel diagramma 1 per giungere ad una diagnosi ezio-patologica della TMA e conseguentemente adottare un approccio terapeutico adeguato.
5. BASSA PROBABILITA' DI TMA	Rappresentano situazioni che se presenti correlano con una bassa probabilità di TMA	• Cirrosi epatica • Deficiti severo di vitamina B12 (MCV >) • Emopatie acute

- Hb 13,6 → **9,4 g/dl** →10,3 g/dl, **PLTS 248000 → 164000**
- **creatinina 1,64 mg/dl**, GFR 39 → 67 mg/dl
- **Na 127 → 135, K 2,5 → 3,7** (corretto con kcl per os).
- **LDH 420 U/L**
- glicemia 93 mg/dl
- **PTT" 10, INR 0,95, fibrinogeno 456 mg/dl, D-dimero 413**
- **Test di Coombs negativo**
- PCR 6,17 mg/dl
- EGA: pH 7,6, pCO2 24.8 mmHg pO2 105 mmHg, HCO3- 25 mmol/L, K+ 2,4 mmol/L, anion gap 17,8 mmol/L)
- Trp. hs 34 → 38 ng/L (v.n. < 14)
- **consumo aptoglobina**
- **MO: no schistociti**

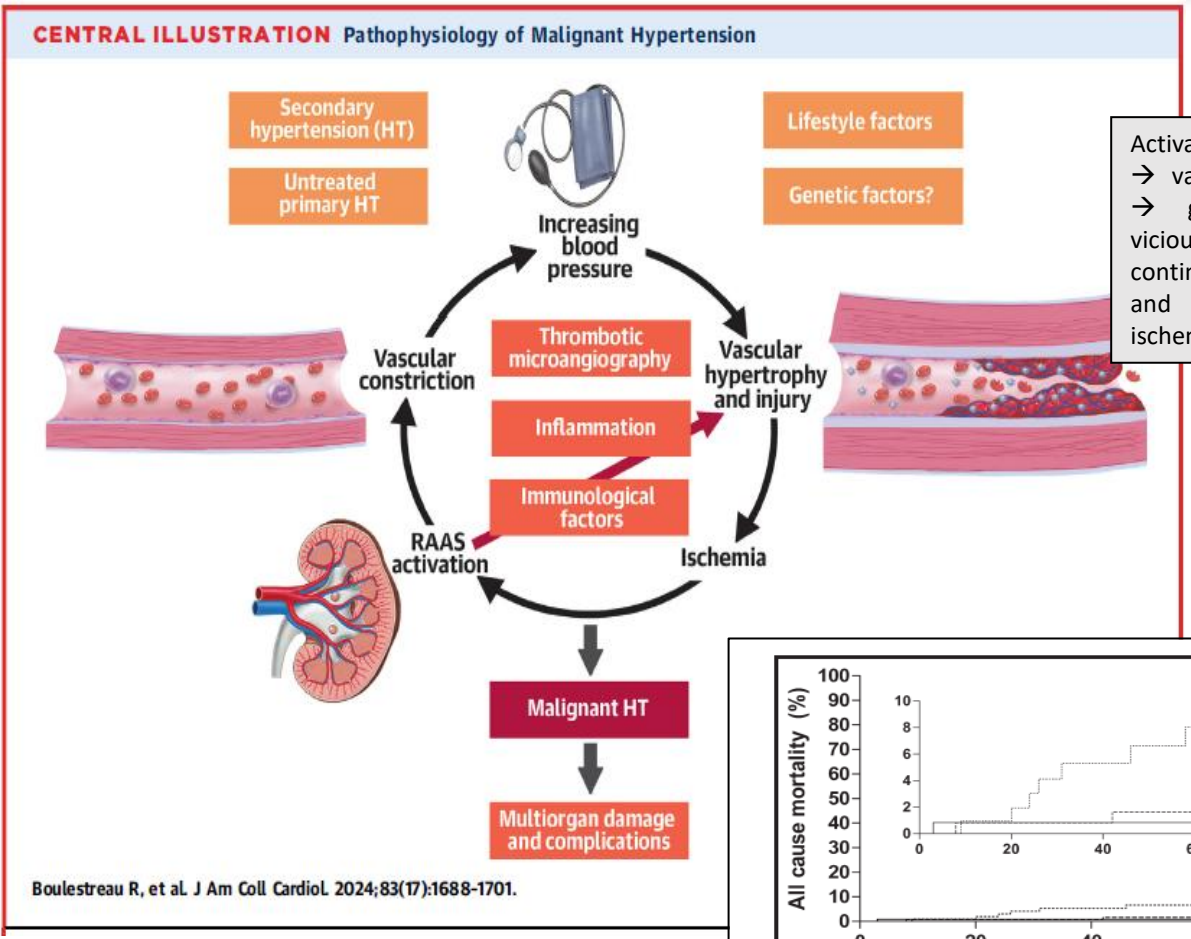


- **ADAMTS 13 = 44%**
- **(v.n. > 40%), Ab anti ADAMTS 13 negativi**
- **Dosaggio complemento**
- **Ab anti CHF**

→ **Si escludevano SEU/PTT.**



Cavero *et al*., Nephrol Dial Transplant (2023)



Activation of RAAS → vasoconstriction → generating a vicious cycle of continuous injury and subsequently ischemia

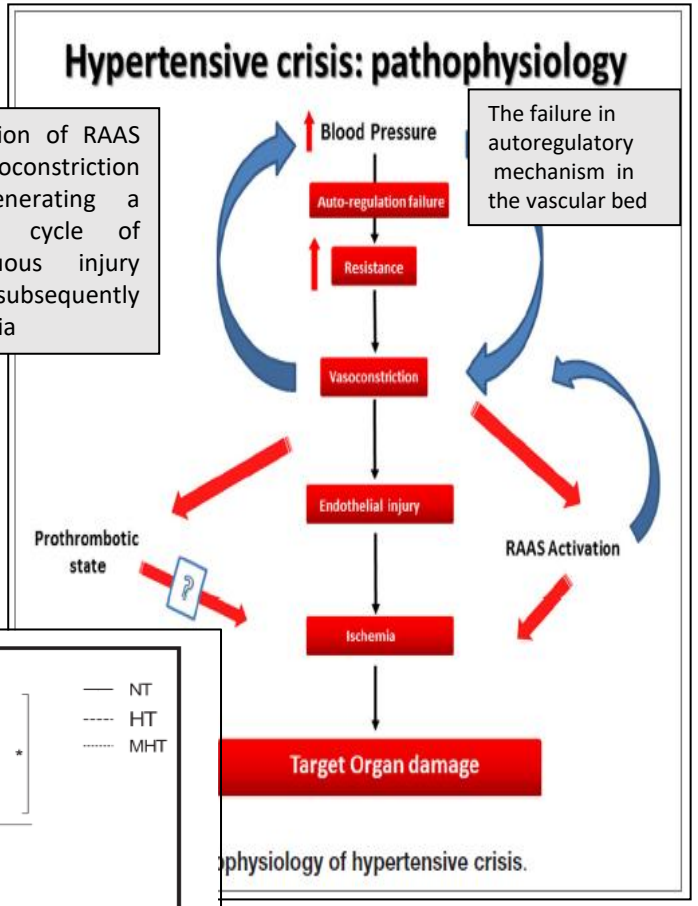


FIGURE. Five-year all-cause mortality for each group. NT indicates normotensive controls; HT, hypertensive controls; MHT, patients with a history of malignant h
MHT compared with NT a
enlargement of the outer f

Amraoui, The Journal of Clinical Hypertension Vol 16 | No 2 | February 2014

Varounis, Frontiers in CV Medicine 2017

a cross-sectional study revealed that about 88% of the patients with hypertensive crisis reported known history of HTN, whereas approximately 76% of the patients were treated previously with antihypertensive treatment

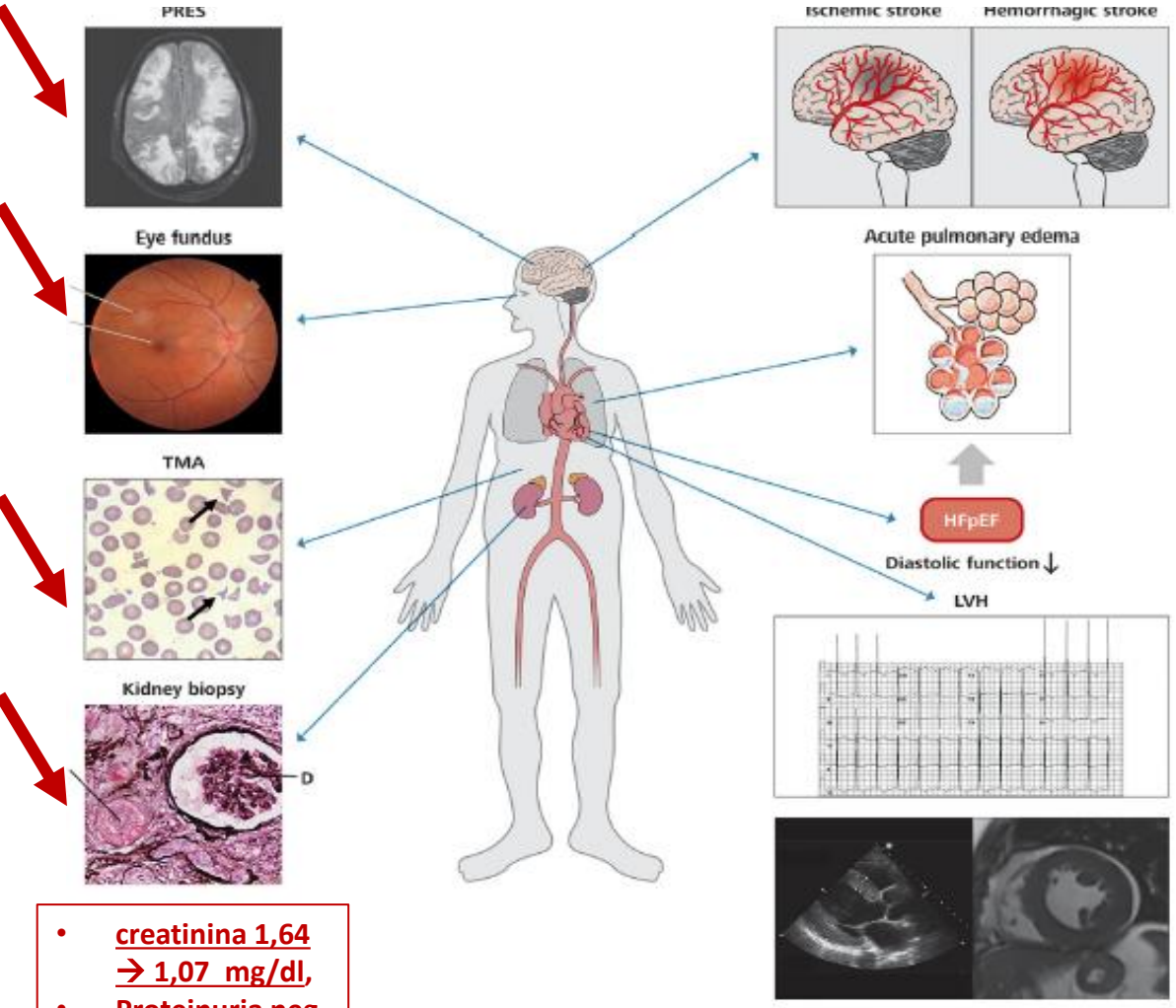


TABLE 2 Highlights for Clinicians: Which Diagnostic Workup Is Useful in Patients With Suspected MHT and What to Expect?

Fundus examination should be part of the initial assessment, as its results might suffice to establish diagnosis of MHT. To clarify target organ damage, additional evaluations of other organs should be considered.
TTE or 12-lead electrocardiogram to assess the degree of left ventricular hypertrophy. Troponin and BNP should be measured if there are abnormalities, to assess microvascular cardiac injury.
Creatinine levels, eGFR, electrolytes, urine albumin-to-creatinine ratio, and urine microscopy for red blood cells to identify acute kidney injury.
LDH, haptoglobin, schistocytes, hemoglobin, and platelet counts to detect TMA. In severe TMA, uremic and hemolytic syndromes or thrombotic thrombocytopenic purpura need to be ruled out.
Brain MRI preferably, or CT scan to assess cerebral injuries such as PRES, stroke, or cerebral hematoma, as well as cerebral microangiopathy.
Urine screening, if available, for substances like cocaine, methamphetamine, or for assessing therapeutic adherence.
Screening for secondary hypertension should be conducted after managing the acute crisis, if possible, without interrupting BP-lowering therapy.

- **creatinina 1,64 → 1,07 mg/dl,**
- **Proteinuria neg**

ecocardiogramma TT.
Setto di spessore ai limiti superiori della norma e funzionalità sistolica conservata

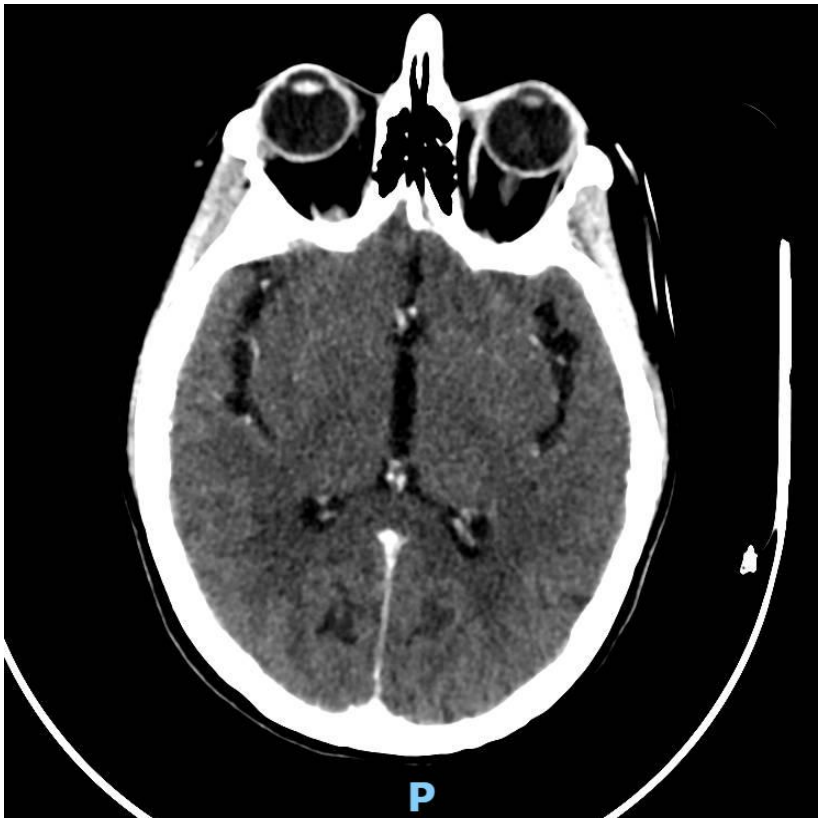
Boulestreau R, et al. J Am Coll Cardiol. 2024;83(17):1688-1701.

Non alterazioni di carattere acuto nè impregnazioni contrastografiche di significato focale. Non emorragie in atto nè lesioni espansive.
Angio-TC : non difetti di opacizzazione dei vasi arteriosi intra ed extracranici che presentano regolare calibro e decorso, dominanza dell'a. vertebrale sx vs a. destra, sottile di aspetto ipoplasico. Aa. del poligono di Willis regolari.
Non difetti di riempimento dei seni venosi della dura, sostanzialmente simmetrici

EEG su attività di fondo a circa 7-8 Hz di medio voltaggio, rallentamenti delta in sede temporale bilaterale (> sinistra)

rachicentesi:
- liquor chimico fisico nella norma
- filmarray su liquor negativo per patogeni

PERSISTENZA DI AGITAZIONE, CONFUSIONE, OBNUBILAMENTO DEL SENSORIO, SENZA EVIDENTI SEGNI DI LATO



Angio TC 11/08/24 notte

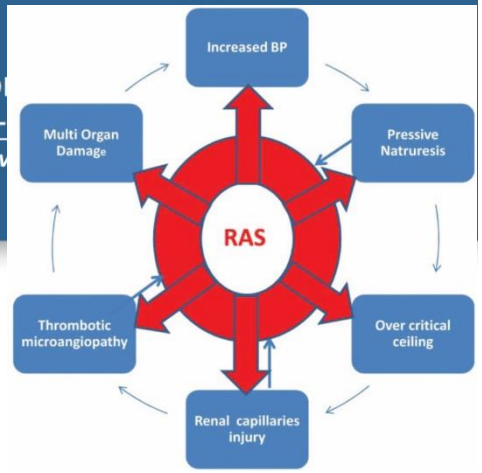
TABLE 24. Hypertensive emergencies requiring immediate BP-lowering with i.v. drug therapy

Clinical presentation	Timing and BP target	First-line treatment	Alternative
Malignant hypertension with or without acute renal failure	Several hours Reduce MAP by 20–25%	Labetalol[a] Nicardipine	Nitroprusside Urapidil
Hypertensive encephalopathy	Immediately reduce MAP by 20–25%	Labetalol[a] Nicardipine	Nitroprusside
Acute coronary event	Immediately reduce SBP to <140 mmHg	Nitroglycerine Labetalol[a]	Urapidil
Acute cardiogenic pulmonary edema	Immediately reduce SBP to <140 mmHg	Nitroprusside or nitroglycerine (with loop diuretic)	Urapidil (with loop diuretic)
Acute aortic dissection	Immediately reduce SBP to <120 mmHg and heart rate to <60 bpm	Esmolol AND nitroprusside or nitroglycerine or nicardipine	Labetalol[a] or metoprolol
Eclampsia and severe preedampsia/HELLP	Immediately reduce SBP to <160 mmHg and DBP to <105 mmHg	Labetalol[a] or nicardipine and magnesium sulphate	Consider delivery

LG ESH 2023

Terapia 12/08: Labetalolo Ev, nitroglicerina EV, urapidil ev

IIa – IIIa giornata + NIFEDIPINA 30 MG + DOXAZOSIN 4 MG
→ successivamente + IRBESARTAN 300 MG



Discontinuation of IV therapy
Saline infusion if necessary
Request for renal artery doppler

ACE inhibitor Titration

Double dose (If necessary and well tolerated)

If BP >140 mmHg, calcium channel blocker addition

If needed, add beta blockers

If necessary add thiazide diuretics

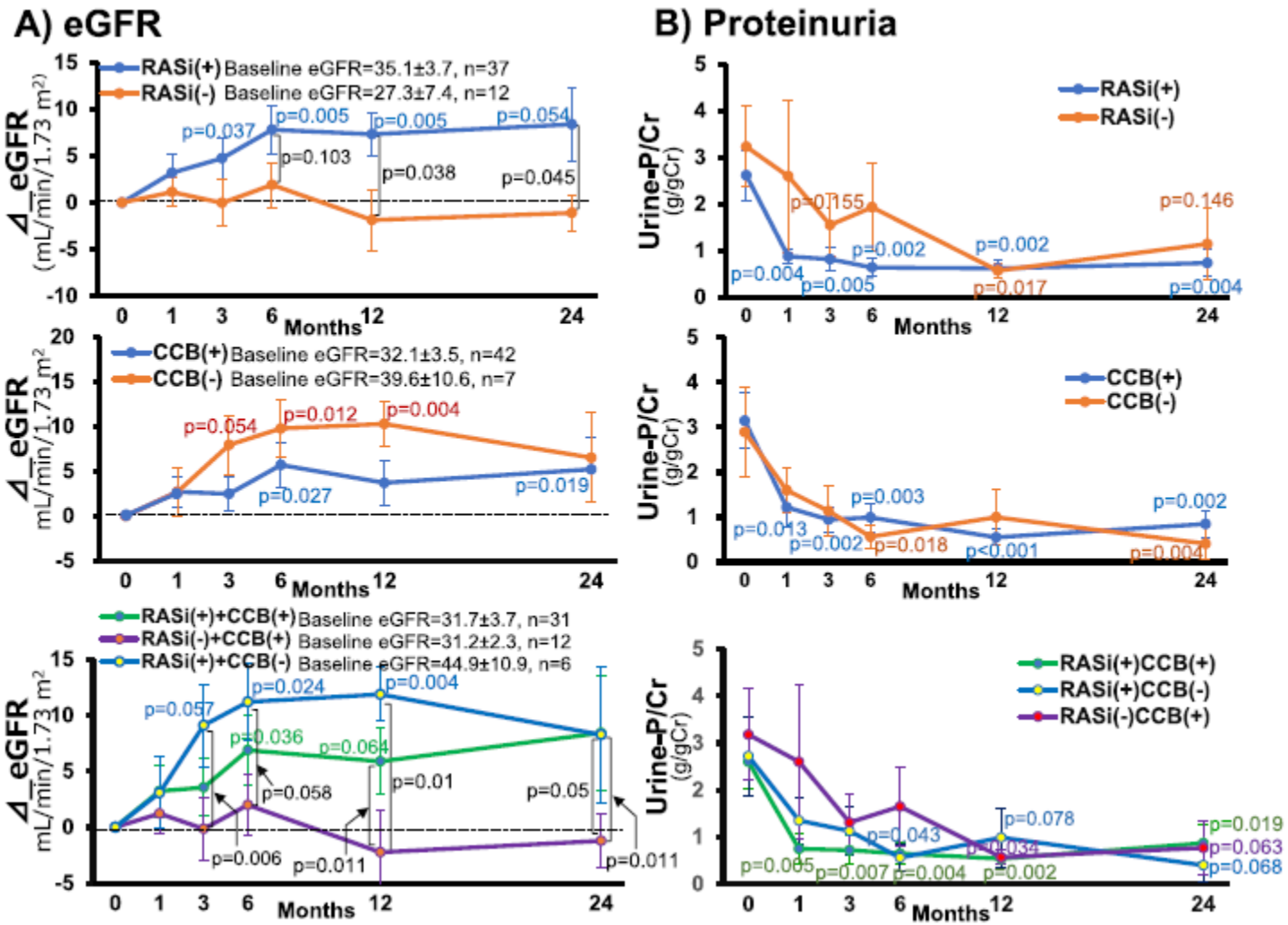
If necessary, add spironolactone

Admission | H 36 | H 48 | Discharge

Monitoring of potassium level / renal function / blood pressure

Gosse, Journal of Hypertension 2020

IMPACT OF EARLY INITIATION OF RASI ON RENAL FUNCTION AND CLINICAL OUTCOMES IN PATIENTS WITH HYPERTENSIVE EMERGENCY: A RETROSPECTIVE COHORT STUDY



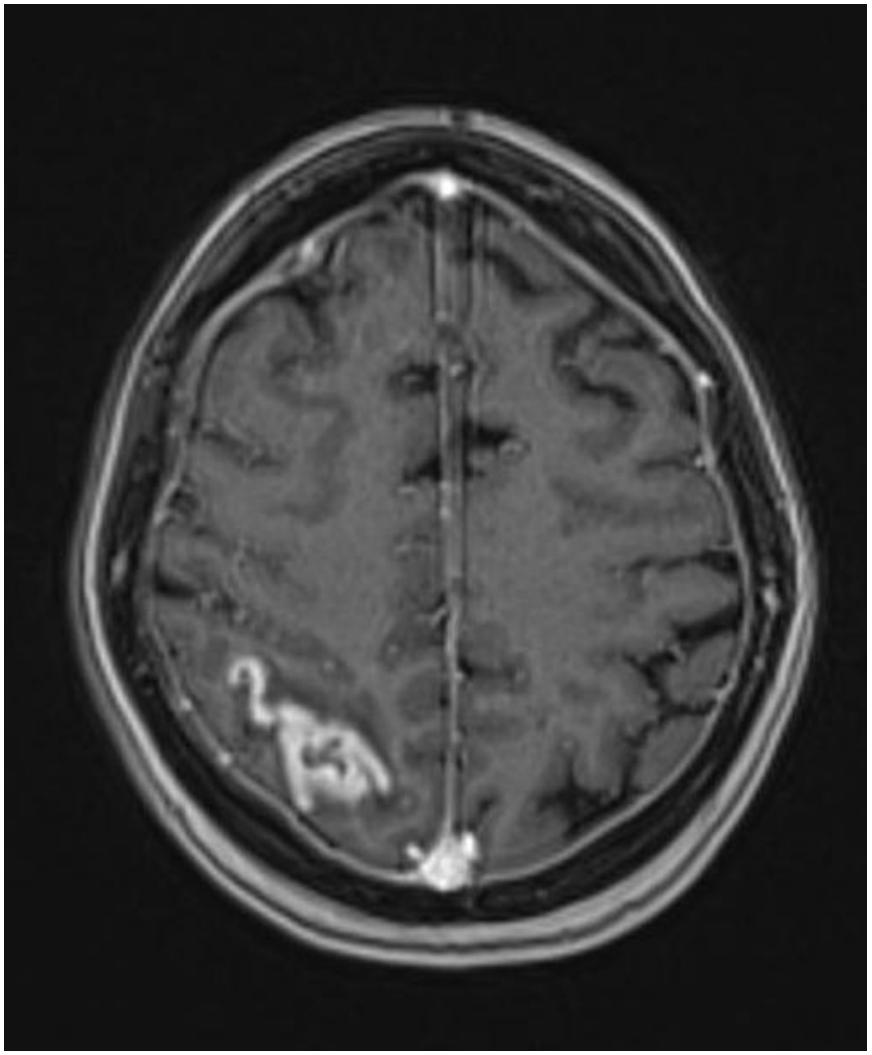
Endo *et al. BMC Nephrology* (2023) 24:68

RM ENCEFALO

In prima ipotesi evento vascolare in fase subacuta tardiva con possibile esito di infarto laminare del territorio di confine tra sistema arterioso e delle collaterali/sistema venoso, per possibile causa da vasocostrizione (reversible cerebral vasoconstriction syndrome) oppure in alternativa non escludibile embolismo nel territorio di P3 della ACP dx, e di ramo parietale distale dell'ACM dx

- **TC encefalo di controllo (23/08): riduzione della quota ipodensa su base edemigena in sede parieto occipitale dx, evidenza di quota di micorinfarcimento ematico maggiormente iperintensa rispetto al precedente, invariati i restanti reperti.**
- **RM encefalo (26.08): miglioramento del quadro radiologico**
- **ETE con microbolle negativo per pervietà del forame ovale**
- **Doppler transcranico negativo per shunt.**

In assenza di sintomi neurologici, persistenza di ipovisus



Esclusione ff secondarie di ipertensione

- **IPERTENSIONE MALIGNA**
- **RETINOPATIA IPERTENSIVA**
- **MICROANGIOPATIA TROMBOTICA IPERTENSIONE MEDIATA**
- **IRA (RISOLTA)**
- **ENCEFALOPATIA IPERTENSIVA ACUTA (PRESS) CON AREE ISCHEMICHE E INFARCIMENTI EMORRAGICI CEREBRALI**

IR 0.68 a dx e IR, 0.67° sinistra

- **Renina 46 mcUI/ml e aldosterone 25 ng/dl (ma OCC!)**
- (a 6 mesi renina 41 mcUI/ml, aldosterone 23,7 ng/dl)

- **ESTROPROGESTINICO (ETINILESTRADIOLO/DROSPIRENONE)**

In dimissione PA 130/80 mmHg con: Amlodipina 10 mg 1 cp + Doxazosina 4 mg 1 cp x 2 + Irbesartan 300 mg 1 cp

Hypertension in Association with Oral Contraceptives

- High-dose estrogen found a mean elevation in BP of 3 to 5 mmHg
- 1/3 patients aged 15-44 years old who develop MH are likely to be on high-dose estrogen OCP.
- MH can occur within eight weeks to eight years of commencing OCP.
- **Risk factors for MH**: high dose estrogen OCP, **hypertension in pregnancy** and family members, diabetes mellitus, obesity**, smoking**, alcohol abuse, and **age greater than 35 years.**
- Predictor of resolution of MH is the absence of renal impairment
- MH caused by OCP induced an increase in renin secretion, causing the secondary elevation of aldosterone
- Mechanisms for the hypertensive effect of OC incompletely understood: (RAS) may be involved since estrogen stimulates the hepatic production of renin substrate angiotensinogen.
- cohort study > 68,000 women on lower doses of estrogen: RR developing hypertension was 1.5 for current

Mir et al., Cureus 2018

All'avvio PA 120/80 mmHg

U.S. Medical Eligibility Criteria for Contraceptive Use, 2024

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

TABLE B1. (*Continued*) Classifications for intrauterine devices, including the copper intrauterine device and levonorgestrel intrauterine device

Condition
Hypertension Systolic blood pressure ≥160 mm Hg or diastolic blood pressure ≥100 mm Hg are associated with increased risk for adverse health events as a result of pregnancy (Box 3).
a. Adequately controlled hypertension
b. Elevated blood pressure levels (properly taken measurements)
i. Systolic 140–159 mm Hg or diastolic 90–99 mm Hg
ii. Systolic ≥160 mm Hg or diastolic ≥100 mm Hg
c. Vascular disease

TABLE C1. (*Continued*) Classifications for progestin-only contraceptives, including implants, depot medroxyprogesterone acetate, and progestin-only pills

Condition	Category: Implant	DMPA	POP	Clarification/Evidence/Comment
Hypertension Systolic blood pres… ≥160 mm Hg or d… blood pressure ≥1… Hg are associated… increased risk fo… health events as a… result of pregnanc… a. Adequately con… hypertension				
b. Elevated blood… levels (properl… measurements… i. Systolic 140–1… diastolic 90–99… ii. Systolic ≥160 … diastolic ≥100 …				
History of high blo… during pregnanc… current blood pre… measurable and n…				

TABLE B1. (*Continued*) Classifications for combined hormonal contraceptives, including pill, patch, and ring

Condition	CHC	Clarification/Evidence/Comment
History of high blood pressure during pregnancy (when current blood pressure is measurable and normal)	2	**Evidence:** Women with a history of high blood pressure in pregnancy who also used COCs had a higher risk for myocardial infarction and VTE than did COC users who did not have a history of high blood pressure during pregnancy. The absolute risks for acute myocardial infarction and VTE in this population remained small (*112,129,141,142,144–150*).
		blood pressure level is not sufficient to classify a person as hypertensive. **Clarification:** Persons adequately treated for hypertension
Hypertension Systolic blood pressure ≥160 mm Hg or diastolic blood pressure ≥100 mm Hg are associated with increased risk for adverse health events as a result of pregnancy (Box 3).		
a. Adequately controlled hypertension	3	**Clarification:** For all categories of hypertension, classifications are based on the assumption that no other risk factors exist for cardiovascular disease. When multiple risk factors do exist, risk for cardiovascular disease might increase substantially. A single reading of blood pressure level is not sufficient to classify a person as hypertensive. **Clarification:** Persons adequately treated for hypertension are at reduced risk for acute myocardial infarction and stroke compared with untreated persons. Although no data exist, CHC users with adequately controlled and monitored hypertension should be at reduced risk for acute myocardial infarction and stroke compared with untreated hypertensive CHC users. **Evidence:** Among women with hypertension, COC users were at higher risk than nonusers for stroke, acute myocardial infarction, and peripheral arterial disease (*101,103,110–113,128–142*). Discontinuation of COCs in women with hypertension might improve blood pressure control (*143*).
b. Elevated blood pressure levels (properly taken measurements)		**Clarification:** For all categories of hypertension, classifications are based on the assumption that no other risk factors exist for cardiovascular disease. When multiple risk factors do exist, risk for cardiovascular disease might increase substantially. A single reading of blood pressure level is not sufficient to classify a person as hypertensive. **Evidence:** Among women with hypertension, COC users were at higher risk than nonusers for stroke, acute myocardial infarction, and peripheral arterial disease (*101,103,110–113,128–142*). Discontinuation of COCs in women with hypertension might improve blood pressure control (*143*).
i. Systolic 140–159 mm Hg or diastolic 90–99 mm Hg	3	
ii. Systolic ≥160 mm Hg or diastolic ≥100 mm Hg	4	
c. Vascular disease	4	

Raccomandazioni SIGO, AOGOI, AGUI

- L'ipertensione arteriosa è controindicazione all'uso dei COC, anche di quelli contenenti DRSP.

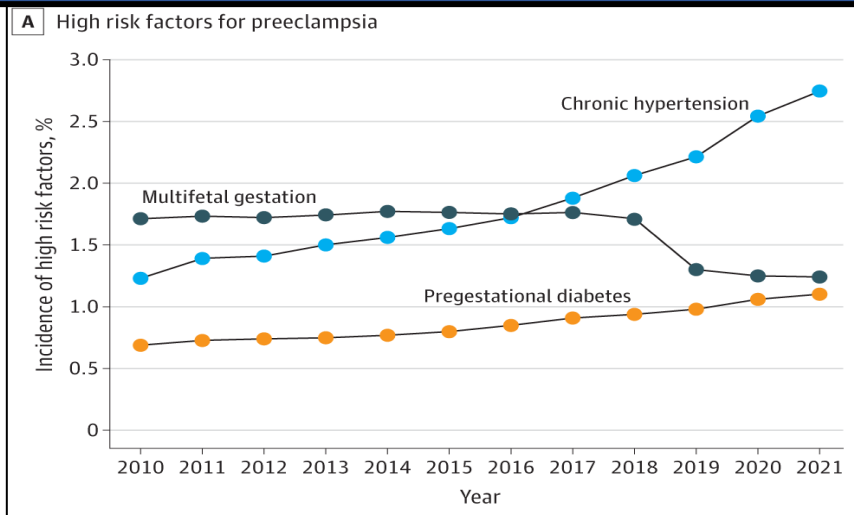
Mikkola, T. S.

Taylor & Francis
2024-01-02

Mikkola , T S & Ylikorkala , O 2024 , ' Pregnancy-associated risk factors for future cardiovascular disease - early prevention strategies warranted ' , Climacteric , vol. 27 , no. 1 , pp. 41-46 . https://doi.org/10.1080/13697137.2023.2287628

Synthetic combined oral contraceptives (OC) should be prescribed with caution to women with a known risk of CVD, because their use, at least that of older high-estrogen content OC, is accompanied with elevations in blood pressure and in risk of myocardial infarction and stroke [37,38]. OCies can hardly ever be recommended for smoking, hypertensive or women over 35 years of age, especially for women with high CVD risk due to prior pregnancy complication. It is not known if the use of OC would potentiate the pre-existing risks, but such a possibility exists and therefore, caution is needed. These women should use barrier methods, intrauterine devices, containing copper or releasing levonorgestrel or progestin-only oral contraceptives which evidently are devoid of vascular risks.

Trends in Preeclampsia Risk Factors in the US 2010 -2021



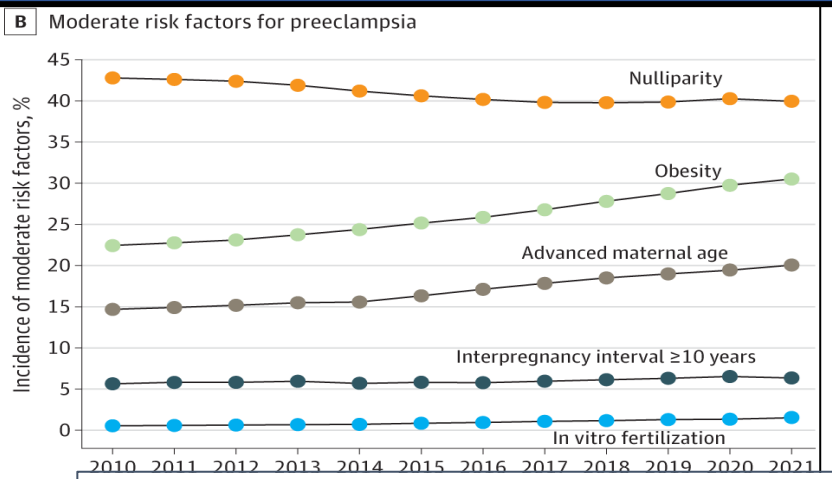


Tabella 3. Prevalenza dei disordini ipertensivi in una gravidanza futura in donne con storia di ipertensione nella gravidanza in atto o precedente *[Raccomandazioni basate su evidenze di qualità da molto bassa ad alta e sull'esperienza e l'opinione del GDG]*

	Tipo di ipertensione nella gravidanza in atto o precedente		
Prevalenza dell'ipertensione in una gravidanza futura	**Qualsiasi tipo di ipertensione**	**Pre-eclampsia**	**Ipertensione gestazionale**
Qualsiasi tipo di ipertensione	~21% (1 donna su 5)	~20% (1 donna su 5)	~22% (1 donna su 5)
Pre-eclampsia	~14% (1 donna su 7)	Sino a ~16% (1 donna su 6) Se il parto è avvenuto tra 28-34 settimane*, ~33% (1 donna su 3) Se il parto è avvenuto tra 34-37 settimane, ~23% (1 donna su 4)	~7% (1 donna su 14)
Ipertensione gestazionale	~9% (1 donna su 11)	~6-12% (sino a 1 donna su 8)	~11-15% (sino a 1 donna su 7)
Ipertensione cronica	Non applicabile	~2% (sino a 1 donna su 50)	~3% (sino a 1 donna su 34)

*Per le donne che hanno partorito prima della 28ª settimana di gestazione, in assenza di evidenze il GDG ha concordato che il rischio è almeno pari a quello delle donne che hanno partorito tra la 28ª e le 34ª settimana.

Da LG NICE 2019

Table 24. Diagnostic Criteria for Preeclampsia

Blood pressure	SBP ≥140 mm Hg or DBP ≥90 mm Hg on 2 occasions at least 4 h apart after 20 wks of gestation in a woman with previously normal BP *or* SBP ≥160 mm Hg or DBP ≥110 mm Hg (severe hypertension can be confirmed within a short interval [min] to facilitate timely antihypertensive therapy).
AND	
Proteinuria	≥300 mg per 24-h urine collection (or this amount extrapolated from a timed collection) *or* Protein/creatinine ratio ≥0.3 *or* Dipstick reading of 2+ (used only if other quantitative methods are not available)
OR in the Absence of Proteinuria, New Onset Hypertension With the New Onset of Any of the Following:	
Thrombocytopenia: Platelet count <100 × 10^9/L	
Renal insufficiency: Serum creatinine concentrations >1.1 mg/dL or a doubling of serum creatinine concentration in the absence of other renal disease	
Impaired liver function: Elevated blood concentration of liver transaminases to twice normal concentration	
Pulmonary edema	
New-onset headache unresponsive to medication and not accounted for by the alternative diagnoses or visual symptoms	

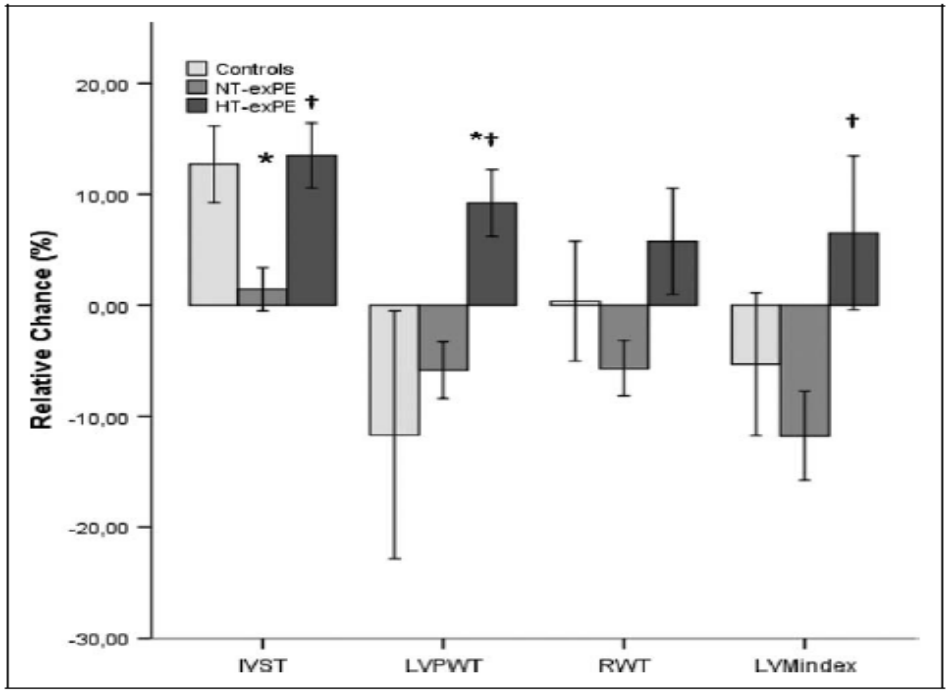
Mariam K. Ayyash, JAMA 2024

Long-Term Risk to Develop Hypertension in Women With Former Preeclampsia: A Longitudinal Pilot Study

Table 2. Blood Pressure and Metabolic Variables in the 2 Subgroups of Former Patients and in the Parous Controls at 1-Year and 14-Year Postpartum With the Absolute Change Accumulated in the Intermeasurement Interval.[a]

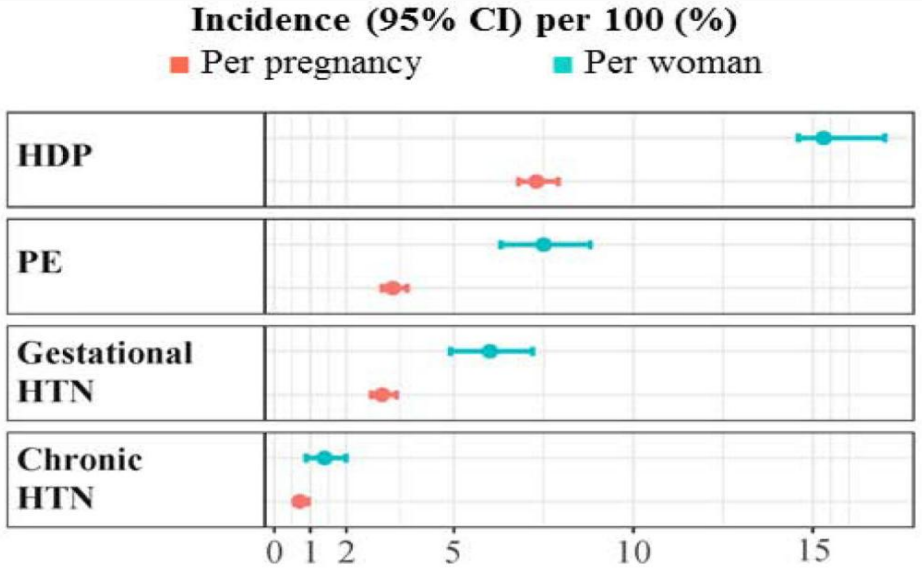
		Controls (n = 8)	NT-exPE (n = 13)	HT-exPE (n = 7)
BMI, kg/m^2	1-Year pp	20.8 (19.4; 24.9)	21.8 (20.4; 24.7)	24.1 (18.9; 28.7)
	14-Year pp	22.5 (20.3; 26.5)	23.6 (22.5; 25.8)	27.9 (23.0; 29.2)
	Diff	1.4 (−0.1; 3.0)	2.1 (0.8; 3.3)	2.7 (1.5; 5.9)
Weight, kg	1-Year pp	59 (54; 64)	62 (59; 67)	69 (55; 74)
	14-Year pp	62 (57; 70)	68 (61; 76)	76 (69; 87)
	Diff	3 (0; 6)	5 (2; 8)	7 (5; 13)
Systolic BP, mm Hg	1-Year pp	117 (108; 126)	115 (110; 121)	128 (120; 140)[b]
	14-Year pp	128 (110; 146)	114 (112; 129)	152 (138; 159)[b]
	Diff	11 (−1; 30)	−2 (−8; 6)	16 (−2; 29)[b]
Diastolic BP, mm Hg	1-Year pp	75 (69; 78)	69 (64; 74)	85 (75; 91)[b,c]
	14-Year pp	78 (68; 81)	72 (63; 79)	92 (90; 99)[b,c]
	Diff	3 (−3; 11)	−2 (−7; 6)	−1 (−3; 10)
MAP, mm Hg	1-Year pp	91 (79; 95)	84 (79; 89)	98 (88; 112)[b,c]
	14-Year pp	97 (85; 104)	88 (80; 98)	114 (107; 121)[b,c]
	Diff	10 (3; 18)	1 (−5; 8)	5 (0; 20)
Pulse pressure, mm Hg	1-Year pp	42 (40; 50)	46 (44; 50)	45 (39; 49)
	14-Year pp	48 (40; 68)	48 (43; 55)	57 (54; 61)[b,c]
	Diff	8 (−2; 22)	2 (−6; 6)	8 (6; 21)[b]
Glucose, mmol·L^{-1}	1-Year pp	4.8 (4.5; 5.4)	4.8 (4.0; 5.7)	4.9 (4.2; 5.8)
	14-Year pp	5.2 (4.9; 5.5)	5.1 (5.0; 5.4)	5.3 (5.3; 5.7)
	Diff	0.6 (0.0; 0.7)	0.3 (0.0; 0.8)	0.5 (0.2; 1.1)
Insulin, mU·L^{-1}	1-Year pp	6.1 (3.8; 10.2)	6.8 (4.2; 8.1)	8.7 (7.9; 13.9)[b]
	14-Year pp	5.5 (2.0; 8.9)	5.5 (3.0; 8.3)	8.9 (6.2; 14.0)
	Diff	−2.1 (−3.4; 0.3)	−0.6 (−3.1; 1.7)	0.2 (−7.2; 6.1)
Cholesterol, mmol·L^{-1}	1-Year pp	4.7 (4.5; 6.0)	5.2 (4.6; 5.8)	4.5 (4.1; 6.1)
	14-Year pp	5.0 (4.2; 5.7)	4.8 (4.3; 5.9)	5.0 (4.6; 5.5)
	Diff	0.3 (−0.7; 1.1)	−0.2 (−0.6; 0.7)	0.7 (−0.7; 1.0)
HDL-cholesterol, mmol·L^{-1}	1-Year pp	1.6 (1.2; 1.9)	1.6 (1.2; 1.7)	1.2 (0.8; 1.3)
	14-Year pp	1.1 (1.0; 1.6)	1.3 (1.2; 1.5)	0.8 (0.7; 1.3)
	Diff	−0.3 (−0.7; 0.2)	−0.2 (−0.4; 0.1)	−0.1 (−0.5; 0.3)
LDL-cholesterol, mmol·L^{-1}	1-Year pp	2.4 (2.3; 2.9)	3.8 (2.8; 4.4)[c]	2.8 (2.4; 3.0)
	14-Year pp	3.2 (2.4; 3.8)	3.0 (2.7; 3.9)	3.0 (3.0; 3.7)
	Diff	0.8 (−0.1; 1.3)	0.0 (−0.9; 0.2)	0.4 (0.1; 0.7)
Triglycerides, mmol·L^{-1}	1-Year pp	0.9 (0.6; 1.0)	1.2 (0.8; 1.3)	1.2 (0.8; 1.7)
	14-Year pp	1.1 (0.8; 1.7)	0.7 (0.5; 0.8)[c]	1.6 (1.3; 2.1)[b]
	Diff	0.1 (−0.1; 0.9)	−0.3 (−0.7; 0.1)[c]	0.5 (0.0; 0.9)

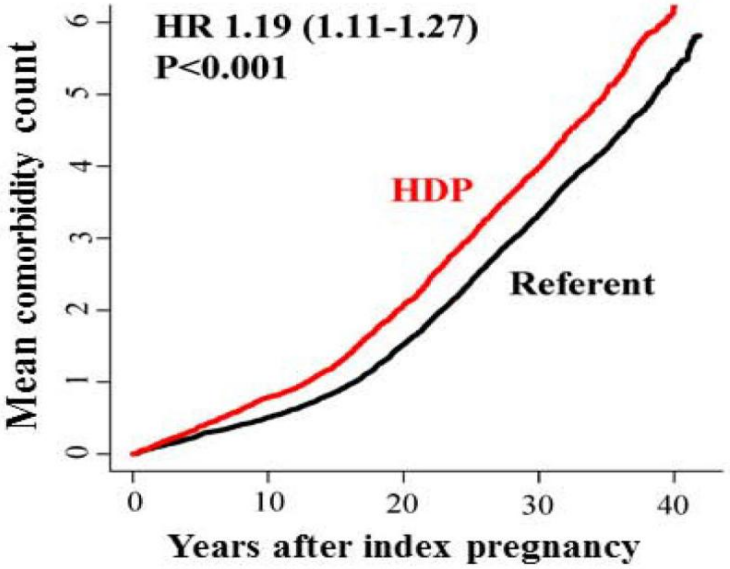
Ghossein-Doha, Reproductive Sciences 2014

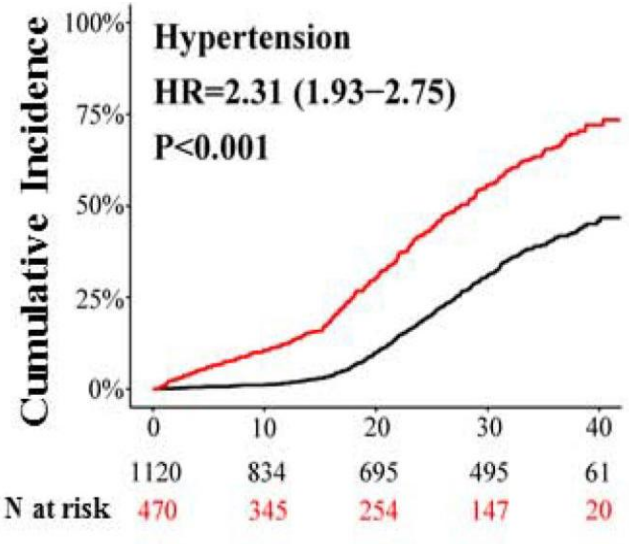


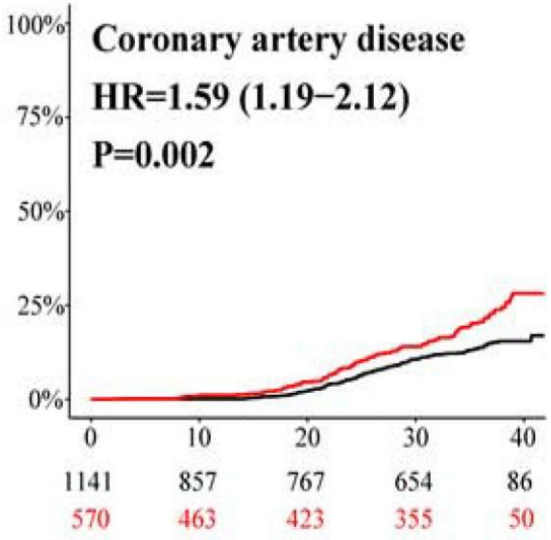
Rischio maggiore di sviluppare ipertensione cronica se (1) P-E nella gravidanza indice < 34w e/o si è ripresentata nelle gravidanze successive e se (2) PA a 1 anno era normale-alta. A 14 anni, nel gruppo iperteso > segni di rimodellamento concentrico ventricolo sin insieme a un rapporto E/A ridotto.

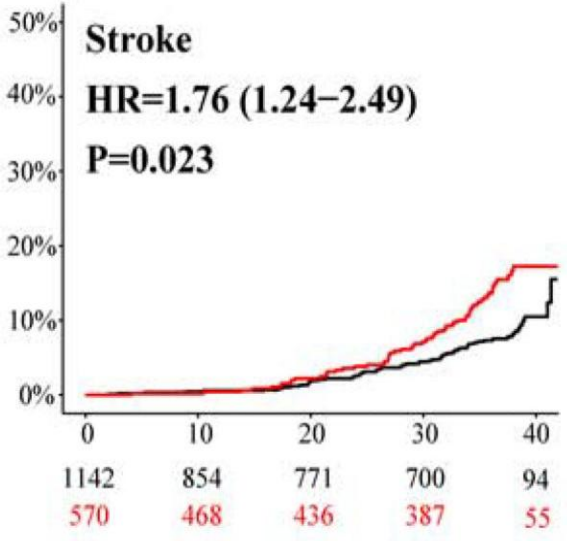
Incidence and Long-Term Outcomes of HDP











Years after index pregnancy

Garovic et al., J Am Coll Cardiol. 2021

THE USE OF SEX-SPECIFIC FACTORS IN THE ASSESSMENT OF WOMEN'S CVR

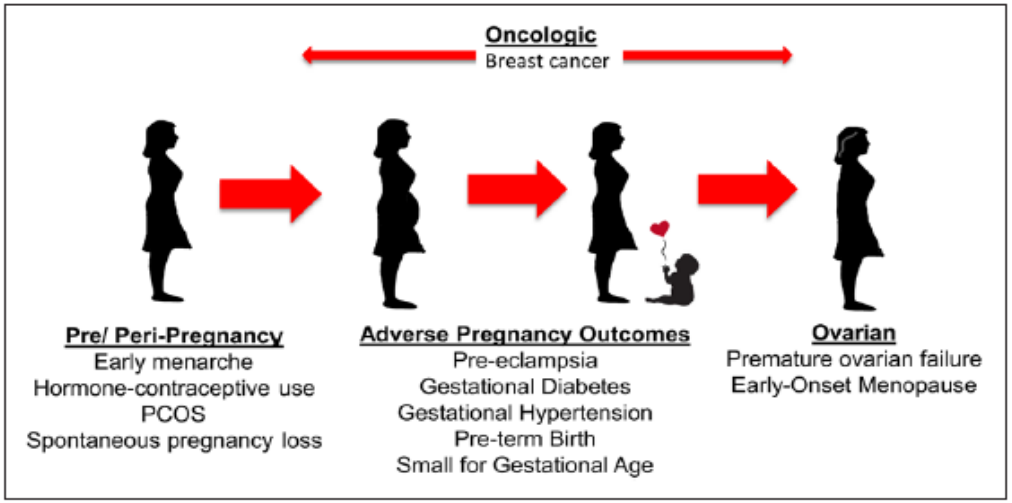


Figure 1. Sex-specific cardiovascular disease (CVD) risk factors in women.
PCOS indicates polycystic ovarian syndrome.

Cardiovascular risk stratification in women:
CORSWO (Coronary Risk Score in Women)
Reynolds Risk Score
Framingham Risk Score
SCORE2

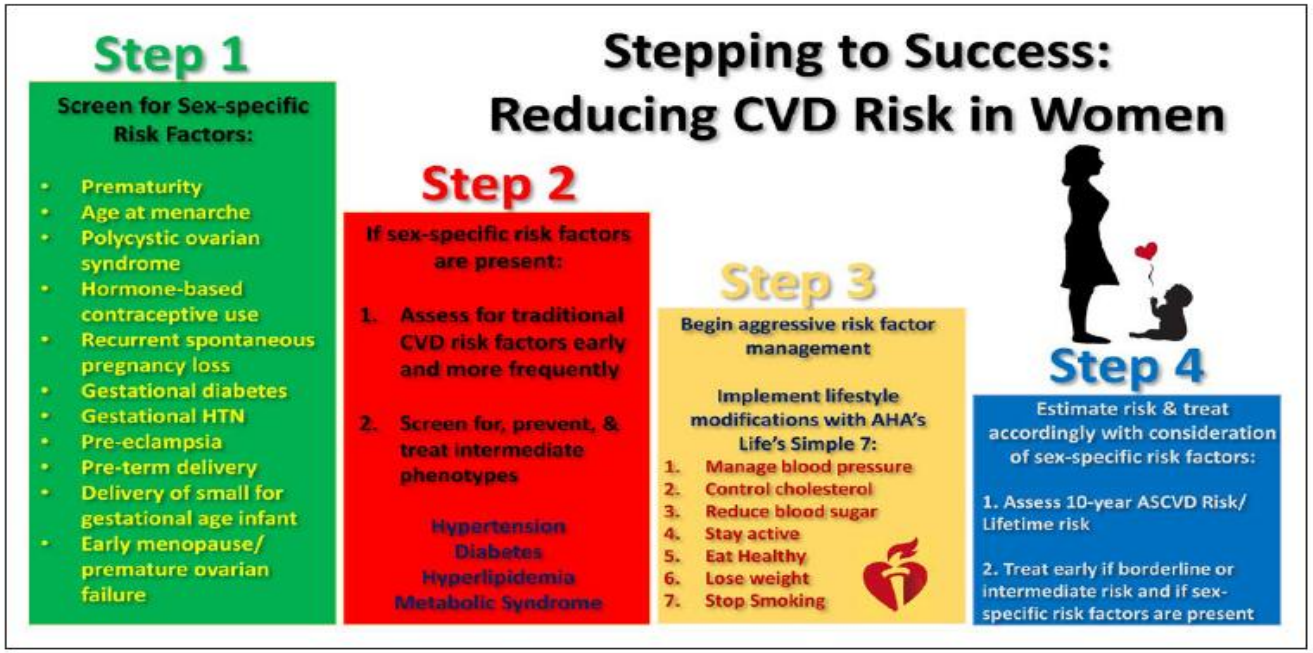


Figure 2. Stepping to success.
Reducing cardiovascular disease (CVD) risk in women when sex-specific risk factors are encountered. AHA indicates American Heart Association; ASCVD, atherosclerotic cardiovascular disease; and HTN, hypertension.

10-Year ASCVD

Lifetime ASCVD Risk

SCORE2 10-y risk and lifetime

Agarwala, Circulation 2020

Sex-specific conditions	In women with a history of pre-eclampsia and/or pregnancy-induced hypertension, periodic screening for hypertension and DM should be considered.[184–187]	IIa	B
	In women with a history of polycystic ovary syndrome or gestational DM, periodic screening for DM should be considered.[188–191]	IIa	B
	In women with a history of premature or stillbirth, periodic screening for hypertension and DM may be considered.[192,193]	IIb	B

LG ESC 2021

Gestational HTN and preeclampsia increase risk for:
- Development of CKM risk factors, including chronic HTN
- Cardiovascular and cerebrovascular morbidity and mortality

- Early detection, diagnosis and management of hypertension in this high-risk group are essential.
- Postpartum individuals with a history of HDP, in whom BP elevations resolve and antihypertensive medications are discontinued, have their BP measured at least annually

Jones, *Circulation*. 2025

Preventive strategies against development of cardiovascular disease (CVD) in women with prior complicated pregnancy which should be implemented.

Enforced health education to enhance all nonmedical interventions

Antihypertensives
- start on time with values > 120-130/80-85 mm Hg
- tighter targets for treatment effect
- careful follow-up

Statins
- start if total cholesterol > 5.2 mmol/L (200 mg/dL) and/or low-density cholesterol > 2.6 mmol/L (100 mg/dL)
- control therapeutic goals during use
- triglycerides > 1.7 mmol/L (150 mg/dL)
- individual tailoring of statins when needed

Low dose aspirin
- history of more than one pregnancy complication
- smoking or other risk unrelated to pregnancy history
- pregnancy complication and family history of cardiovascular disease

Menopausal hormone therapy
- careful benefits/risk evaluation and information
- use advocated in women with vasomotor symptoms
- always in women with premature menopause at least to 52 years of age
- prefer transdermal route of administration
- continue at least up to 60 years

Mikkola, Climateric 2024

CT 198 mg/dl – HDL 90 mg/dl – TG 60 mg/dl
→ **LDL 96 mg/dl**

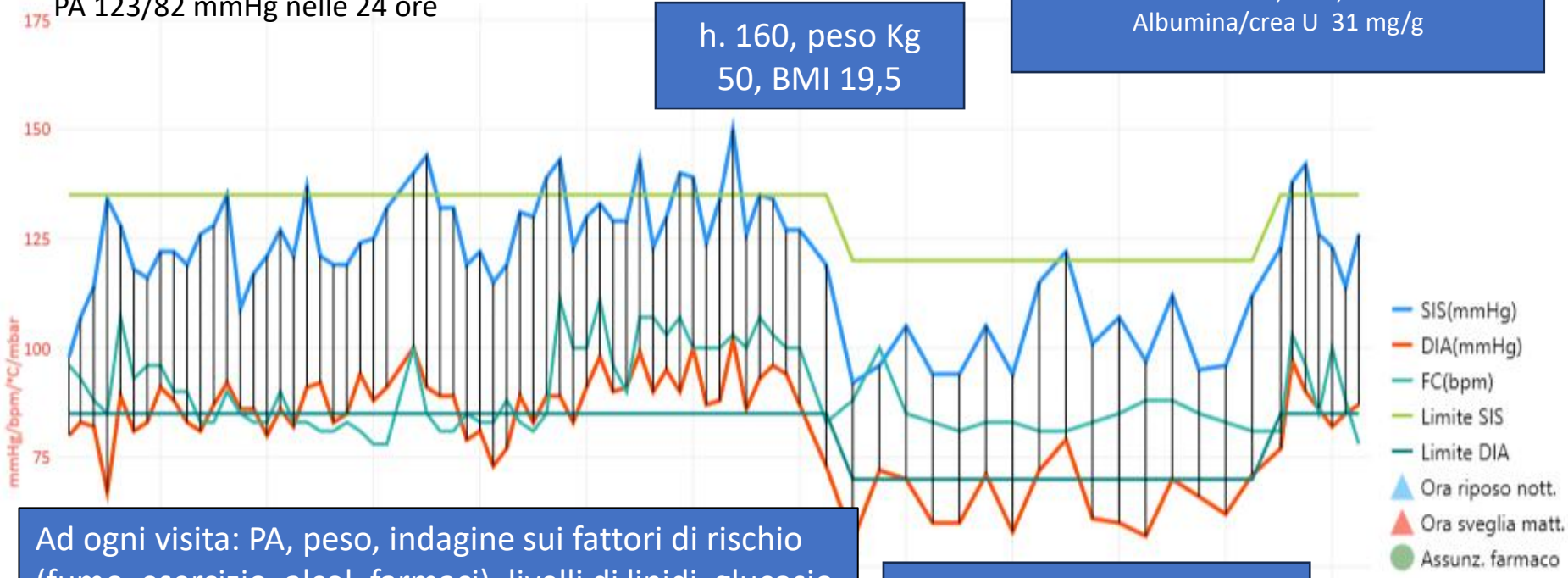
crea 0,72 mg/dl, gfr 105
Na 139, K+ 3,7
Albumina/crea U 31 mg/g

HBPM: 120/85

h. 160, peso Kg 50, BMI 19,5

Profilo circadiano della pressione

IRBESARTAN150 + AMLODIPINA 5 MG
PA 123/82 mmHg nelle 24 ore



Ad ogni visita: PA, peso, indagine sui fattori di rischio (fumo, esercizio, alcol, farmaci), livelli di lipidi, glucosio e markers infiammatori (PCR, IL)

NO ALCOL - NO FUMO
MODESTA ATTIVITA' FISICA

Conclusioni

- *L'ipertensione maligna è un condizione rara, che deve essere immediatamente trattata, con incidenza pari a 2/100.000 in Europa e fino a 4 volte tanto in alcune etnie*
- *Non esiste una soglia pressoria definita e aumenta il rischio di mortalità a breve e lungo termine*
- *Circa l'80% delle donne occidentali ha avuto almeno una gravidanza e circa il 20-30% (16-24% di tutto il totale delle donne adulte) ha sviluppato varie complicanze, che incidono sul rischio CV futuro*
- *In Italia circa il 15% delle donne in età fertile (in Europa circa il 20%) assume un estroprogestinico orale*
- *Queste due popolazioni possono almeno in parte sovrapporsi*
- *I HDP aumentano rischio di recidiva in successive gravidanze e il rischio di eventi CV per i successivi decenni*
- *Controllo e nella educazione sanitaria soprattutto in menopausa quando il rischio CV diviene elevato*
- *E' essenziale identificare precocemente le donne a rischio dopo la gravidanza perché più precoce è la prevenzione CV, migliori sono gli outcomes*
- *E' necessario ridurre la sottodiagnosi ed il sottotrattamento CVD nelle donne*
- *Le complicazioni della gravidanza aumentano il rischio CV e dovrebbero essere anche considerate come determinante nei calcolatori di rischio CV*


Grazie per l'attenzione