HTA et pathologie aortique

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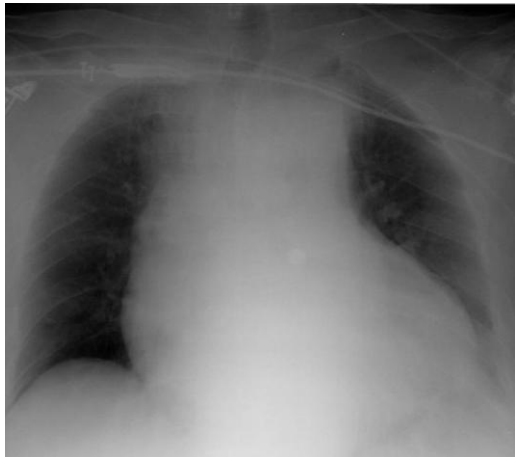
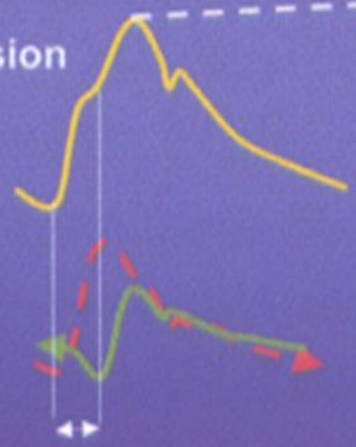
L'auteur déclare n'avoir aucun lien d'intérêt concernant les données de sa communication

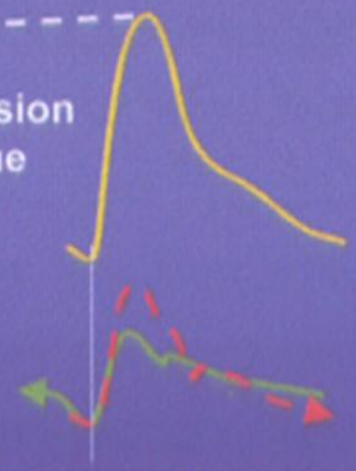


Circulation des ondes de pressions centrale et périphérique

Onde de pression aortique

Onde de pression périphérique

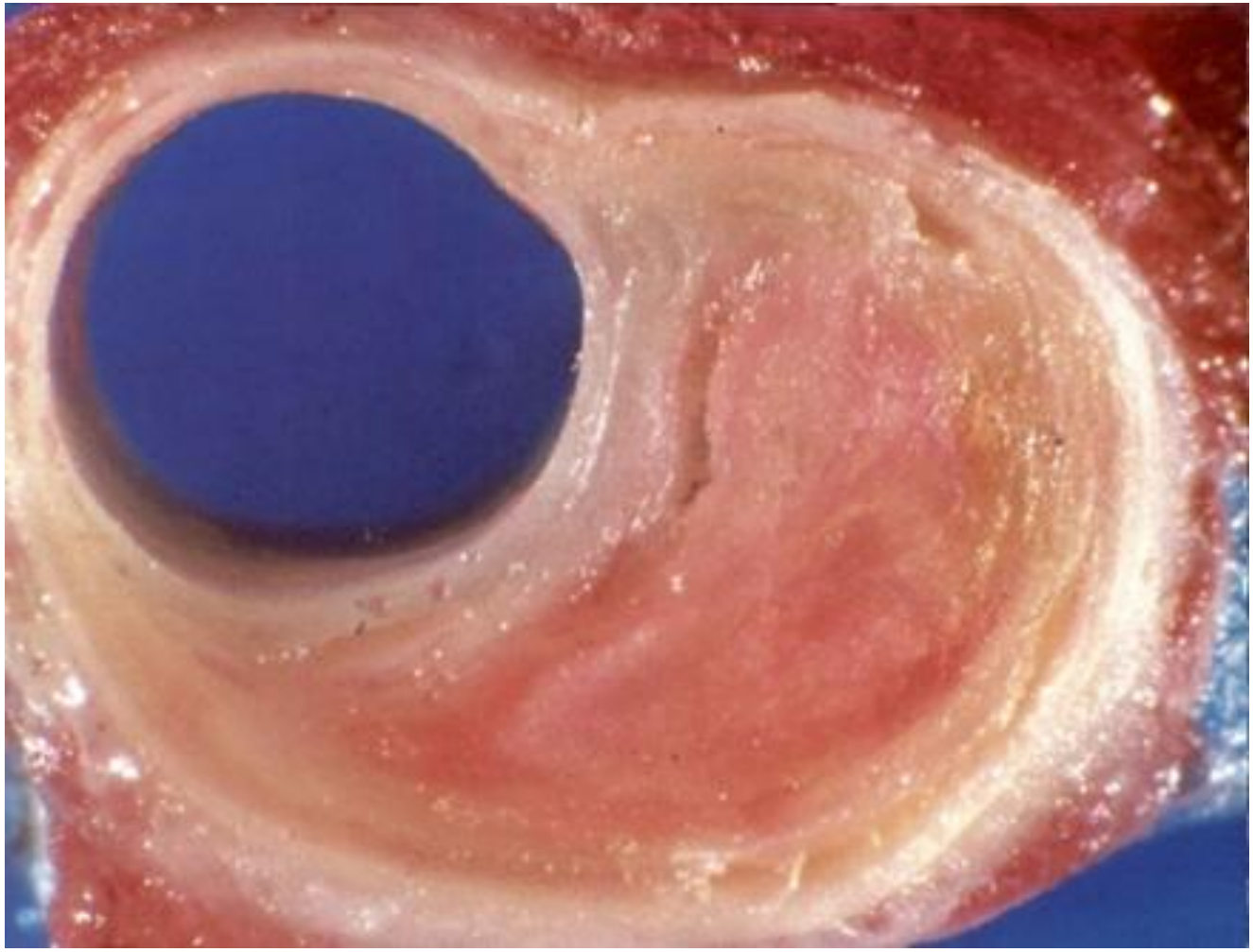




Tsh

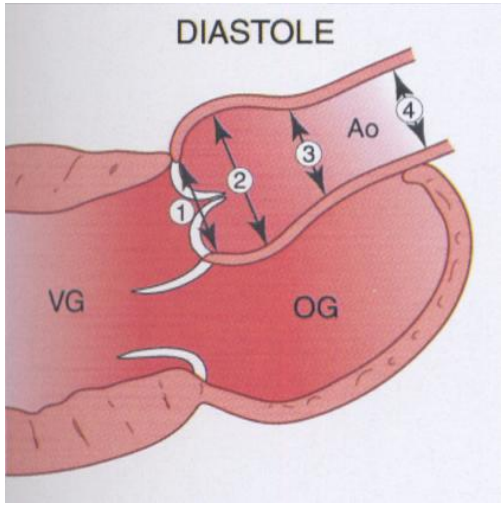
Délai d'apparition de l'onde réfléchie par rapport à l'onde émise

Fusion de l'onde réfléchie et de l'onde émise



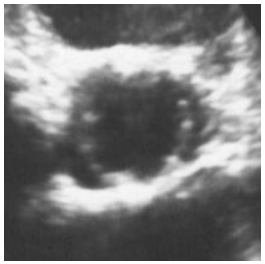
Evaluation avant tout échographique

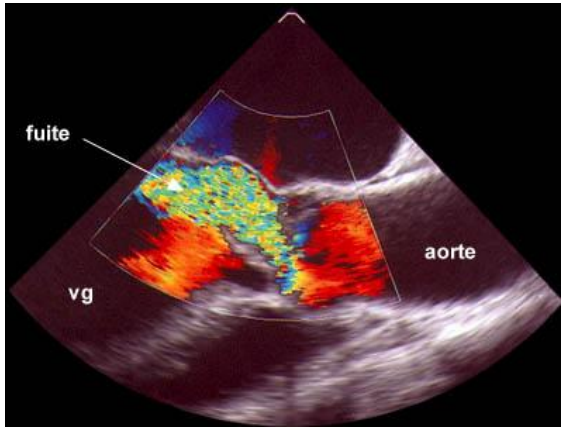
- Mesures des diamètres aortiques
  - Anneau
  - Sinus de Valsalva
  - Jonction sino-tubulaire
  - Segment 1

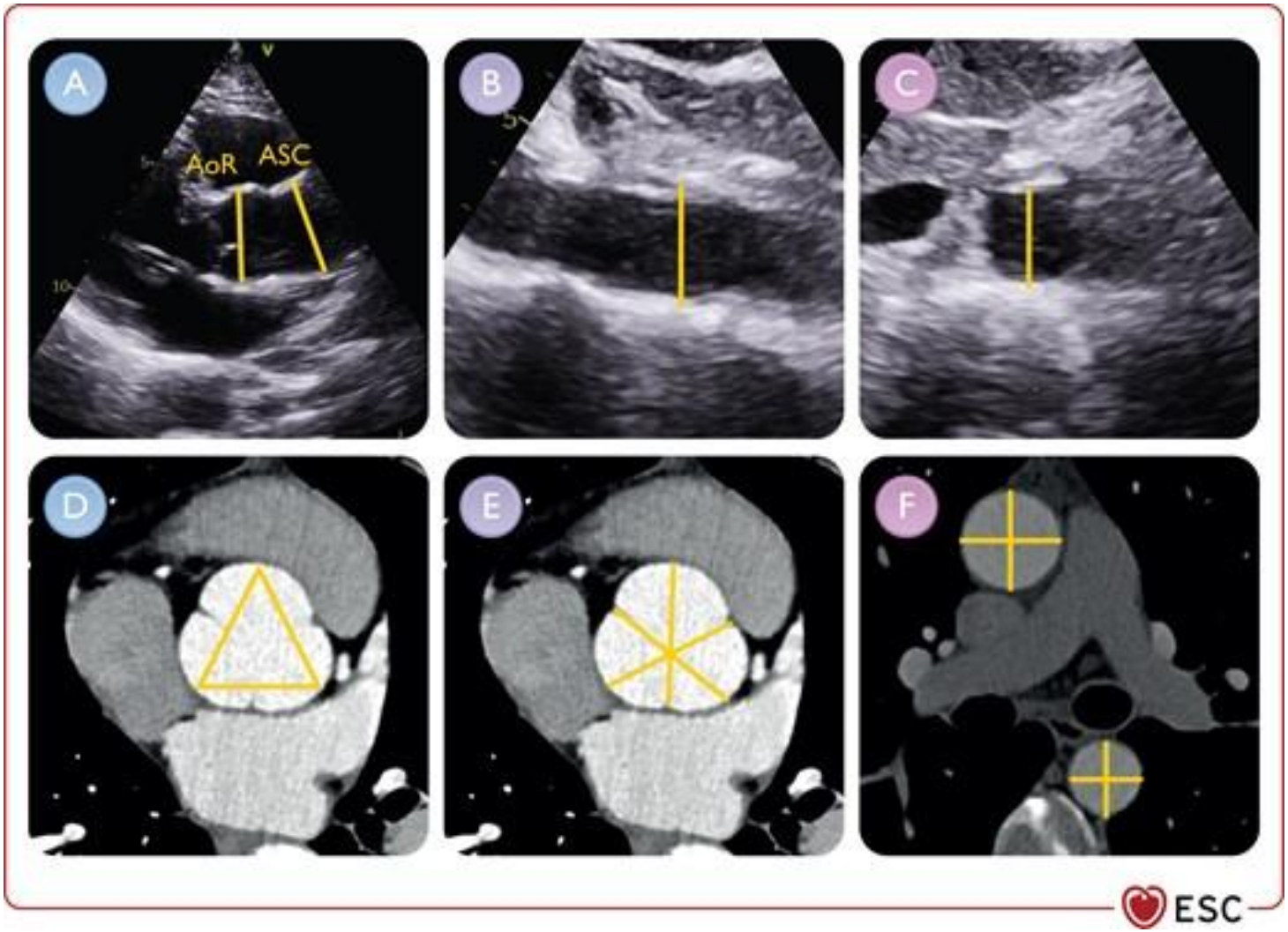


- Insuffisance aortique?

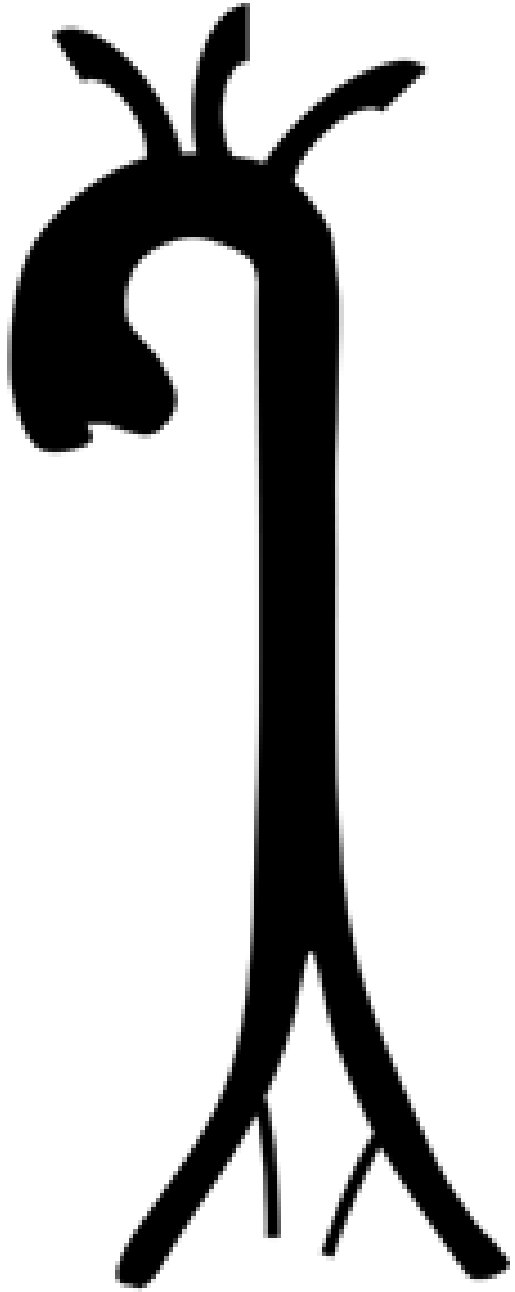
- Analyse de la valve aortique
  - Valve bicuspide?
  - Morphologie, Ca++?







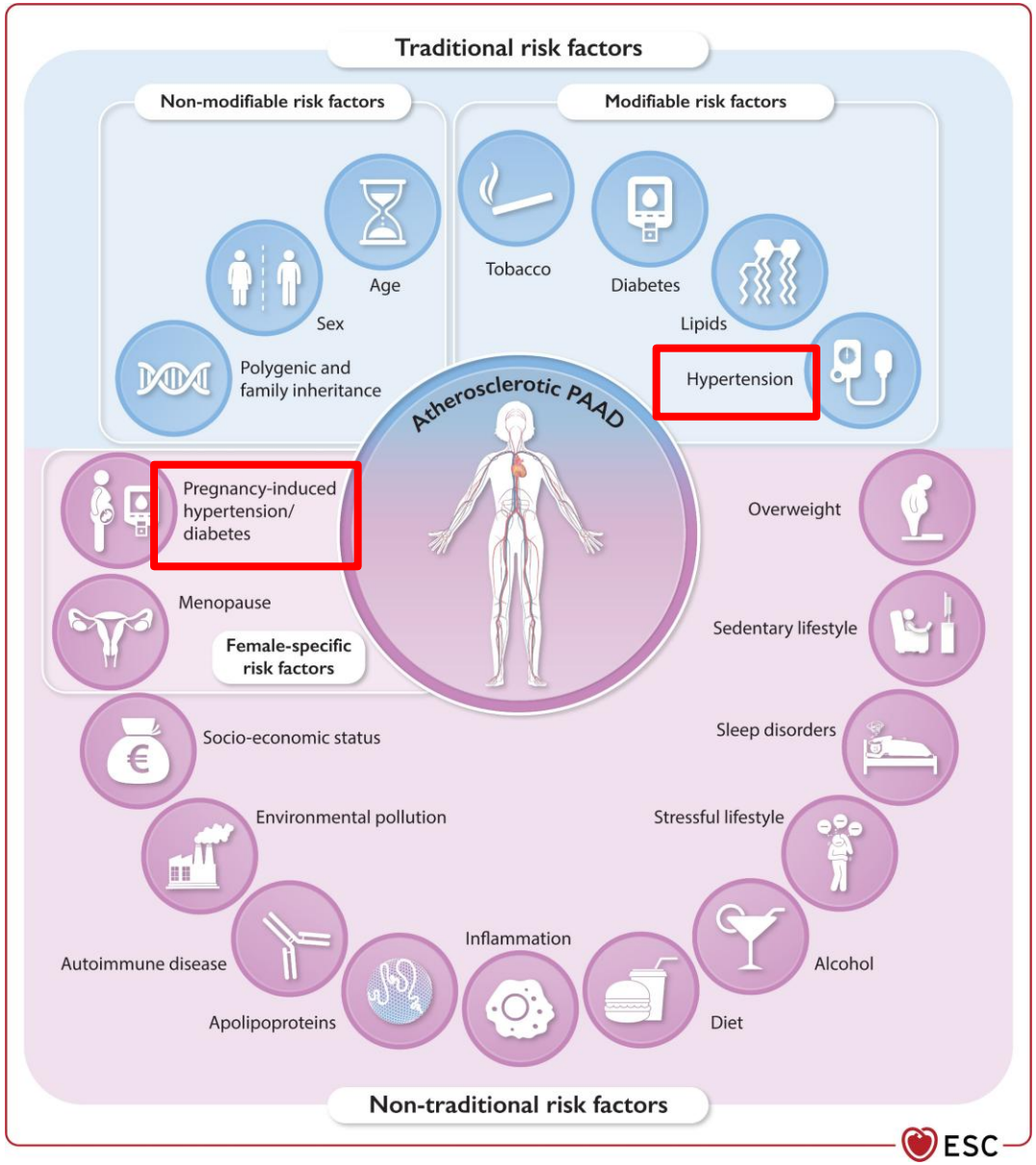
Mazzolai et al., Eur Heart J 2024



Anévrisme aortique

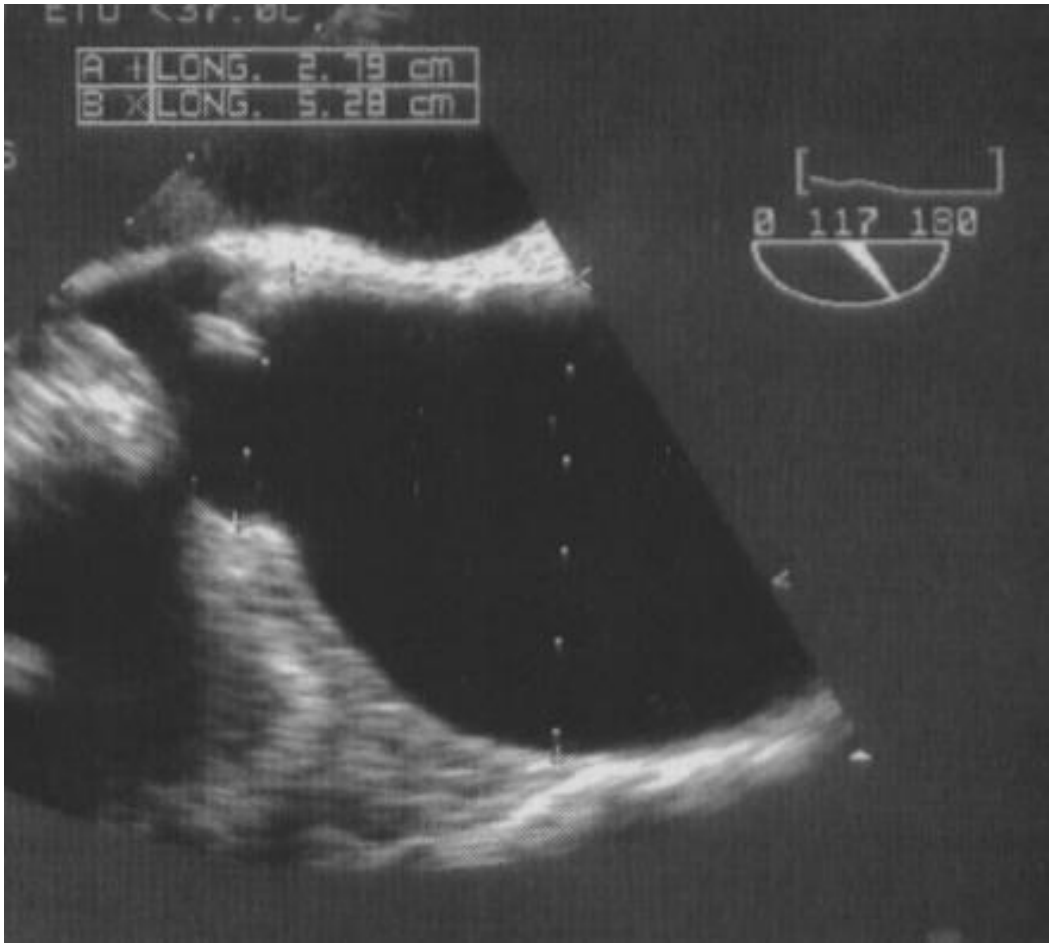
- Aorte thoracique (AAT)
- Aorte abdominale (AAA)

Dissection/hématome aortique (DA/HA)



Mazzolai et al., Eur Heart J 2024

HTA et AAT



- Prédominant à l’aorte ascendante

- Rarement athéromateux (aorte thoracique descendante ou thoraco-abdominale)
- Anomalies constitutionnelles de la paroi aortique +++ (dégénérescence de la média, anomalies du tissu conjonctif)
- Origine génétique (syndromes)
- Bicuspidie aortique, maladies dégénératives ou inflammatoires

Diamètre aortique en fonction du morphotype

TABLEAU III – ÉQUATIONS UTILISÉES POUR CALCULER LE DIAMÈTRE AORTIQUE THÉORIQUE AU NIVEAU DES SINUS DE VALSALVA EN FONCTION DE L'ÂGE ET DE LA SURFACE CORPORELLE. D'APRÈS ROMAN ET AL. [78]

Âge (années)	Diamètre aortique (cm)
< 18	1,02 + (0,98 × SC)
18-40	0,97 + (1,12 × SC)
> 40	1,92 + (0,74 × SC)

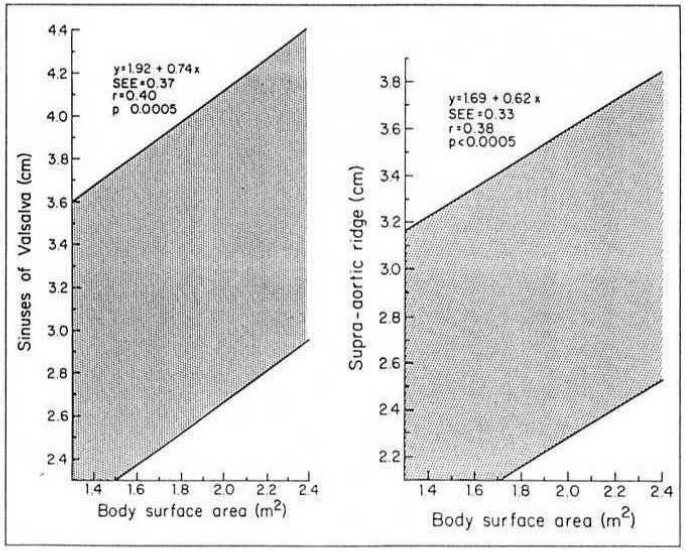
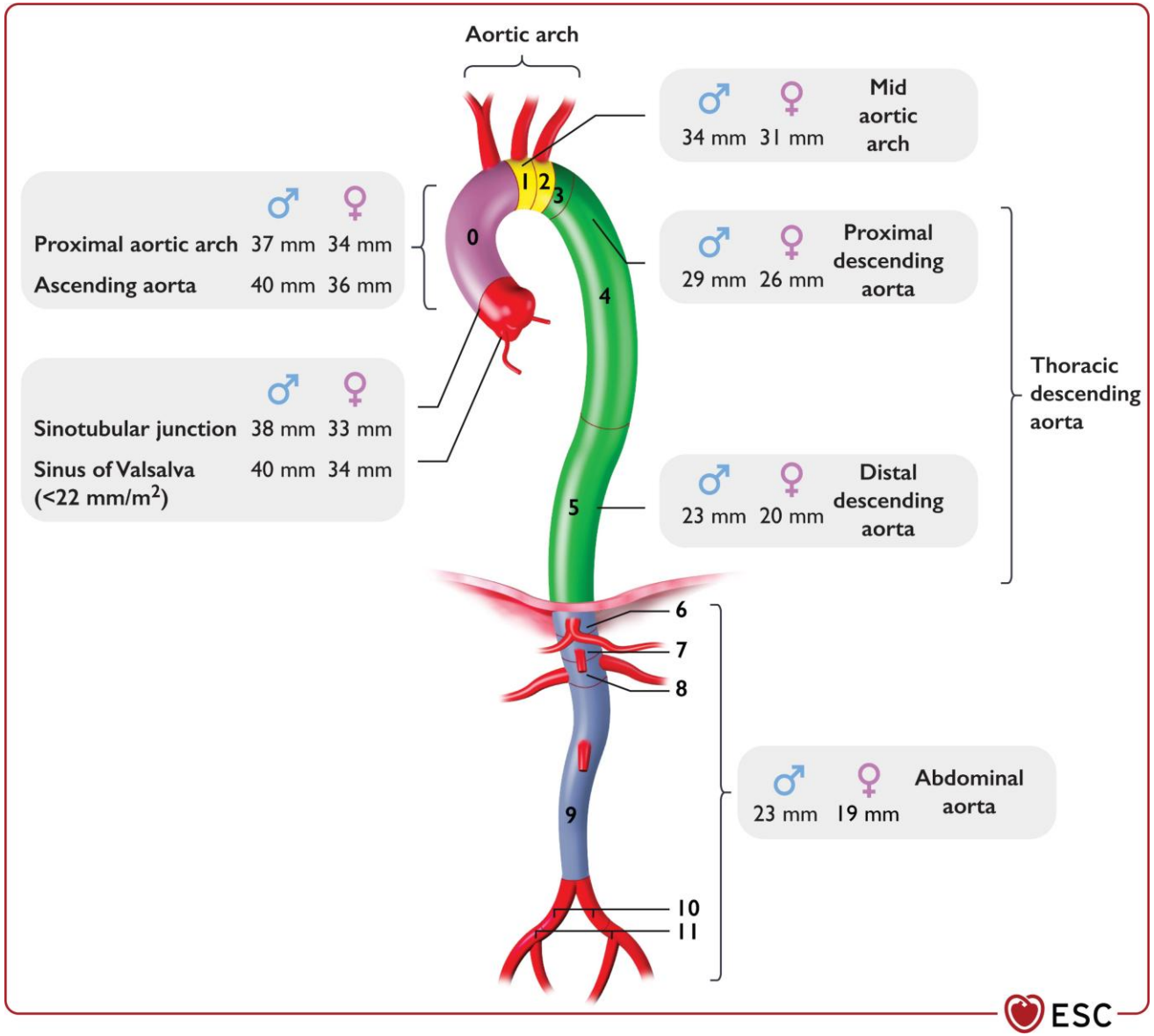


FIGURE 5. ***Left,*** **95% normal confidence limits for aortic root diameter at the sinuses of Valsalva in relation to body surface area in adults 40 years of age and older.** ***Right,*** **95% normal confidence limits for aortic root diameter at the supraaortic ridge in relation to body surface area in older adults.**

N : Diam SV $\leq$ 2,1 cm/m²

Roman et al., Am J Cardiol 1989



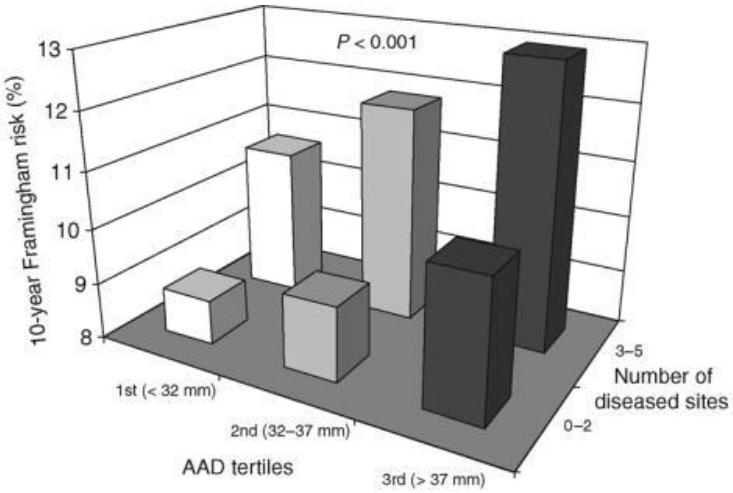
Mazzolai et al., Eur Heart J 2024

345 sujets sans pathologie CV (56 ans, 61% HTA), TDM

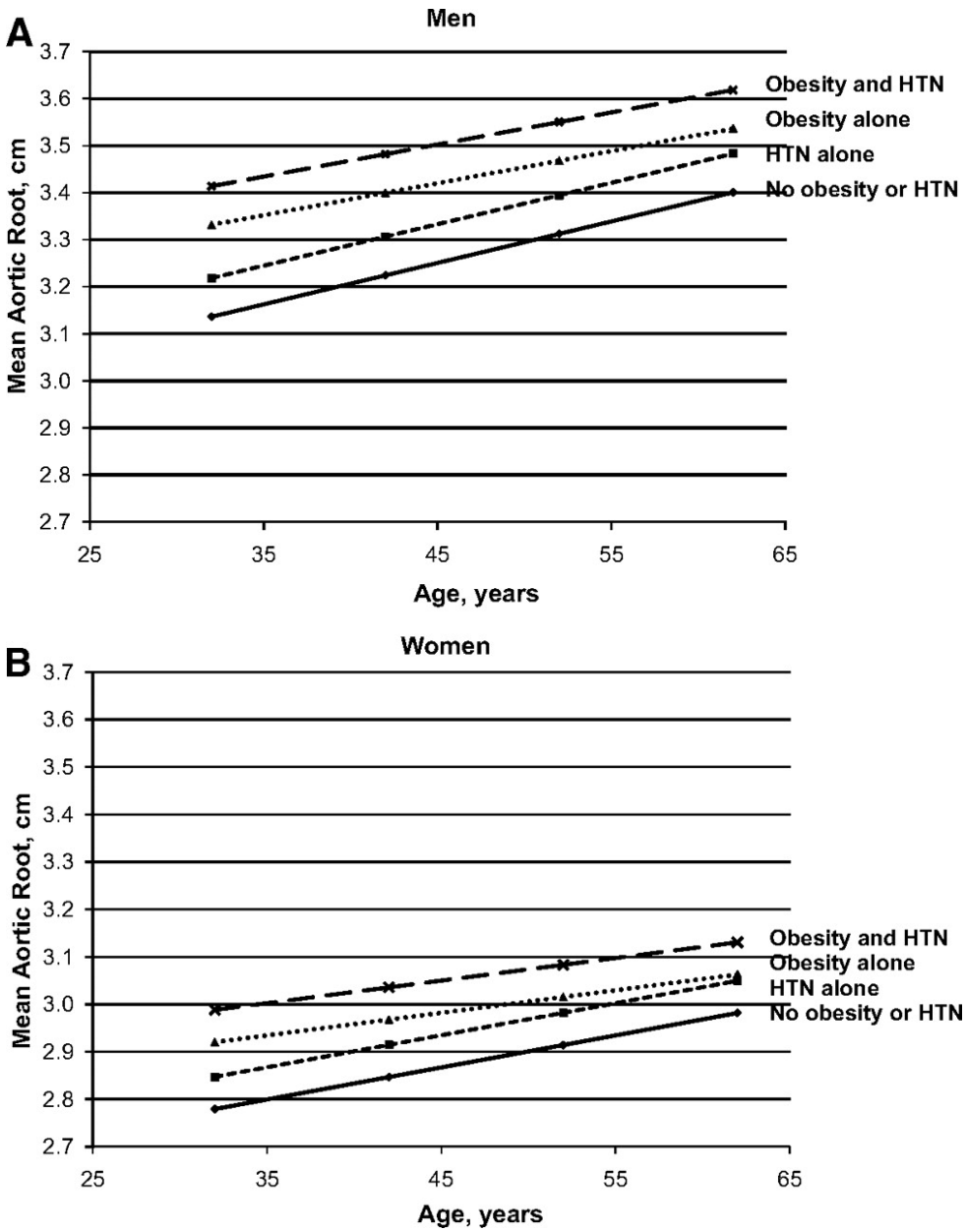
⇒ Relation entre diamètre aorte ascendante et…

Parameter	*r*	*P* value
Age	0.28	<0.001
BMI	0.17	<0.01
Body surface area	0.28	<0.001
Systolic blood pressure[a]	0.18	<0.05
Diastolic blood pressure[a]	0.22	<0.01
Pulse pressure[a]	0.04	NS
Life-long smoking (log-transformed)	0.02	NS
hs-CRP	0.09	NS
FRS	0.25	<0.001

FRS, 10-year Framingham risk score; hs-CRP, high-sensitivity C-reactive protein; NS, nonsignificant; *r*, correlation coefficient. [a]Restricted to the 177 patients without antihypertensive therapy.



Chironi et al., J Hypertens 2010



Framingham Heart Study

4.542 sujets

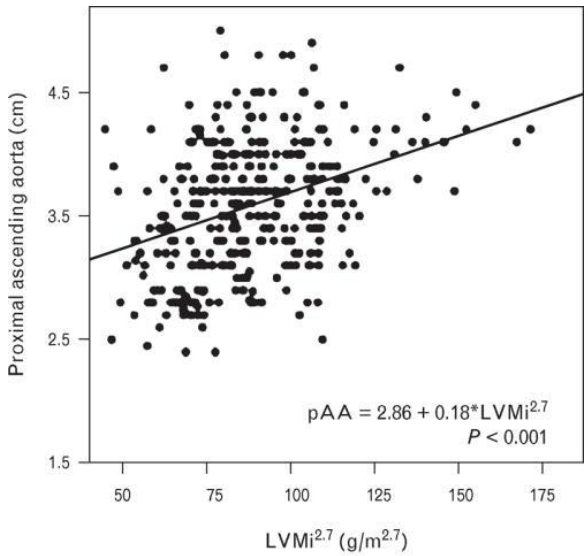
Echographie cardiaque

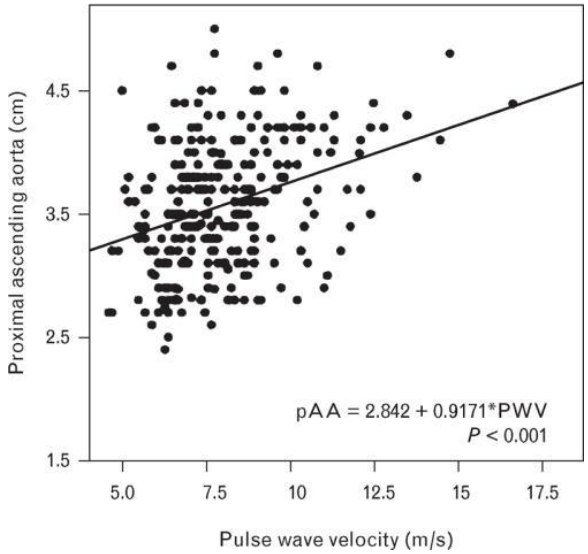
Suivi à 16 ans

Lam et al., Circulation 2010

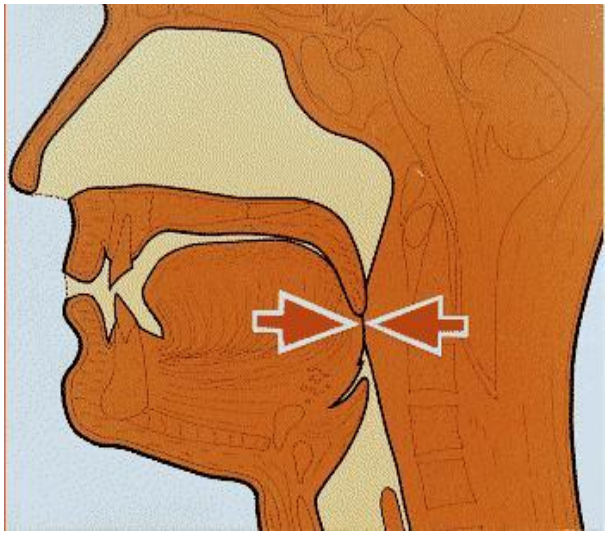
345 HTA essentielle (54 ans), ETT

⇒ 17% dilatation aorte ascendante (Roman)





Milan et al., J Hypertens 2013



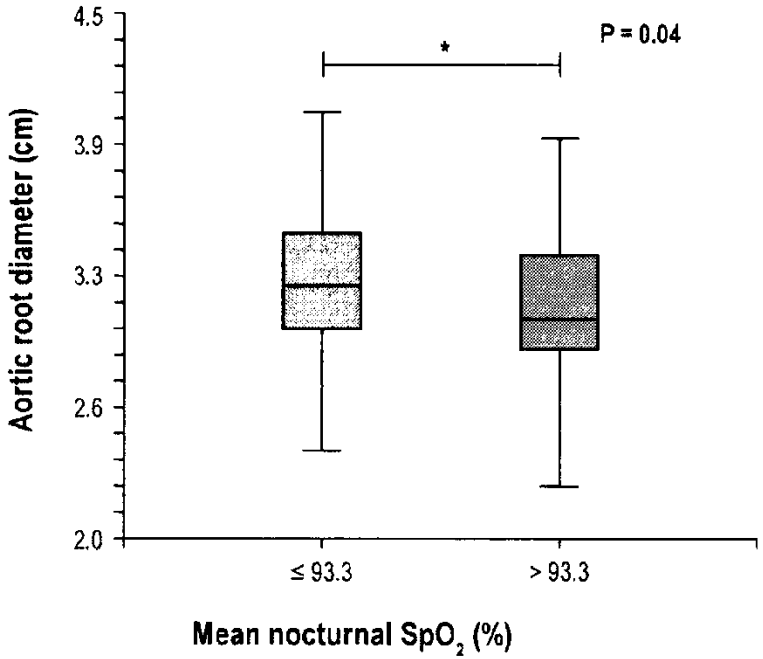
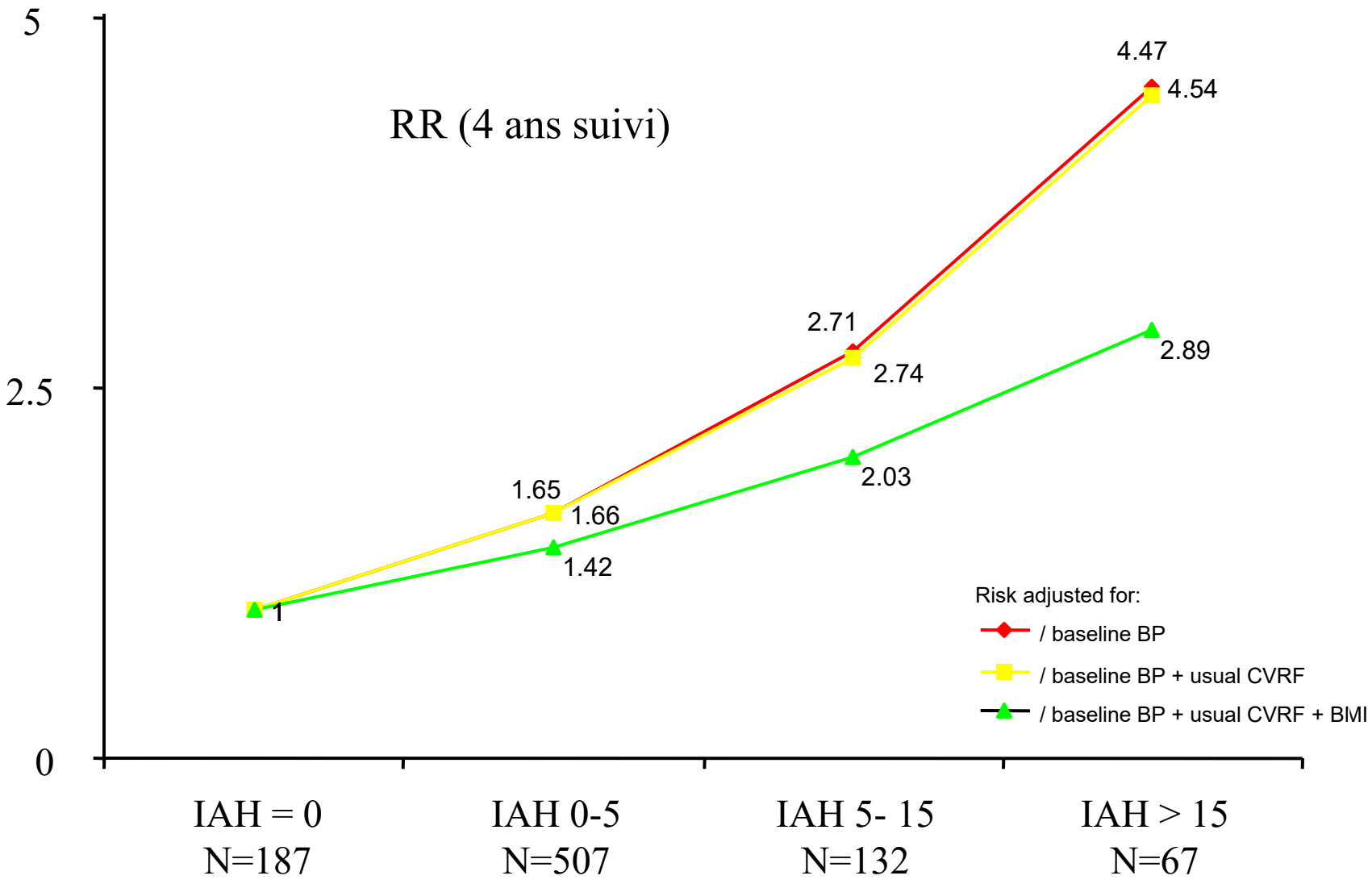


Figure 1A—Patients were separated by the median value of mean nocturnal SpO_2. Aortic root size was increased in those exhibiting the most severe nocturnal hypoxemia.

156 patients SAOS sans pathologie CV connue.
Diamètre aortique (Valsalva, ETT) lié à âge (p=0,03) et SpO2 nocturne moyenne (p=0,015)

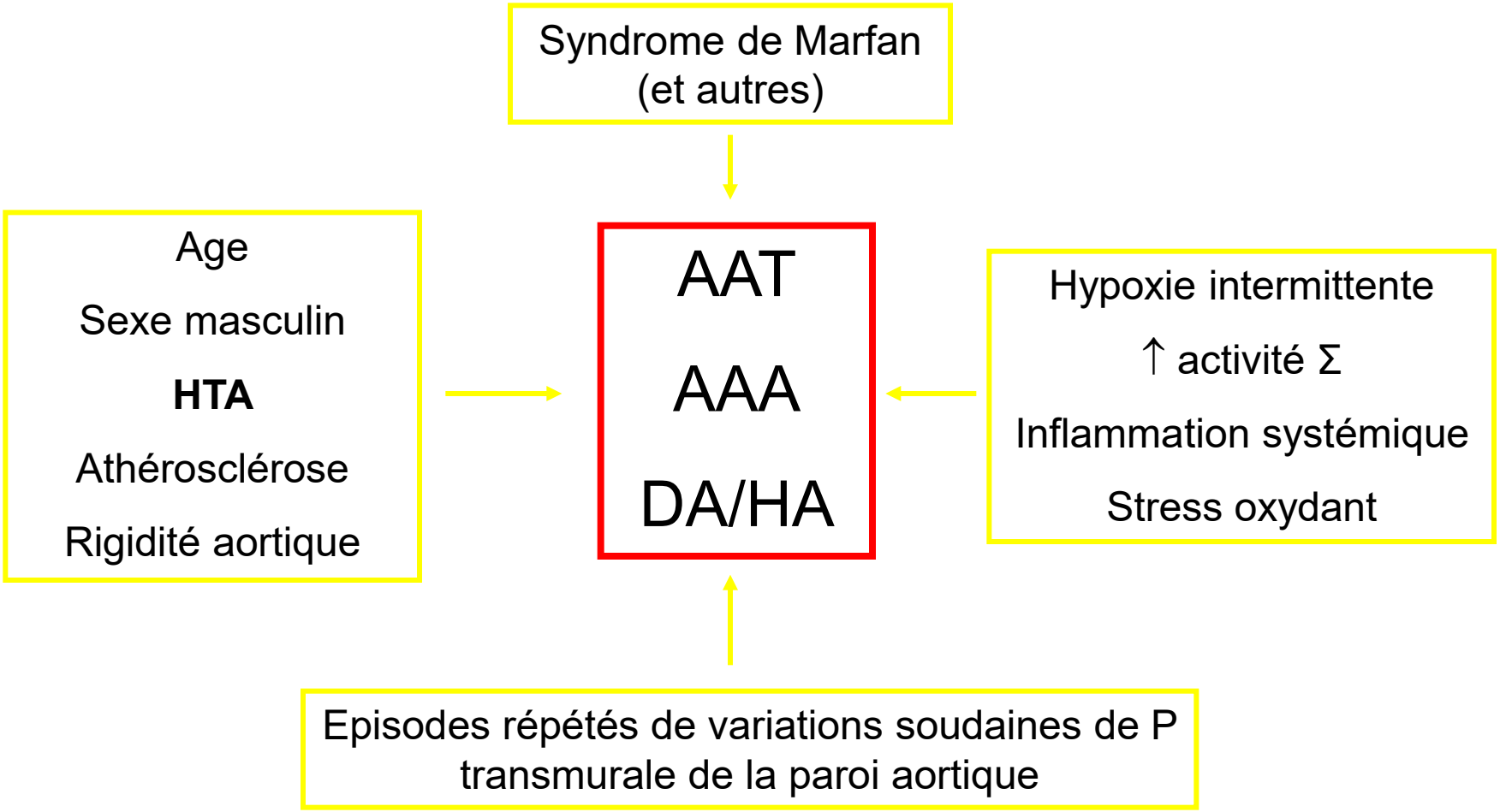
Baguet et al., Sleep 2011

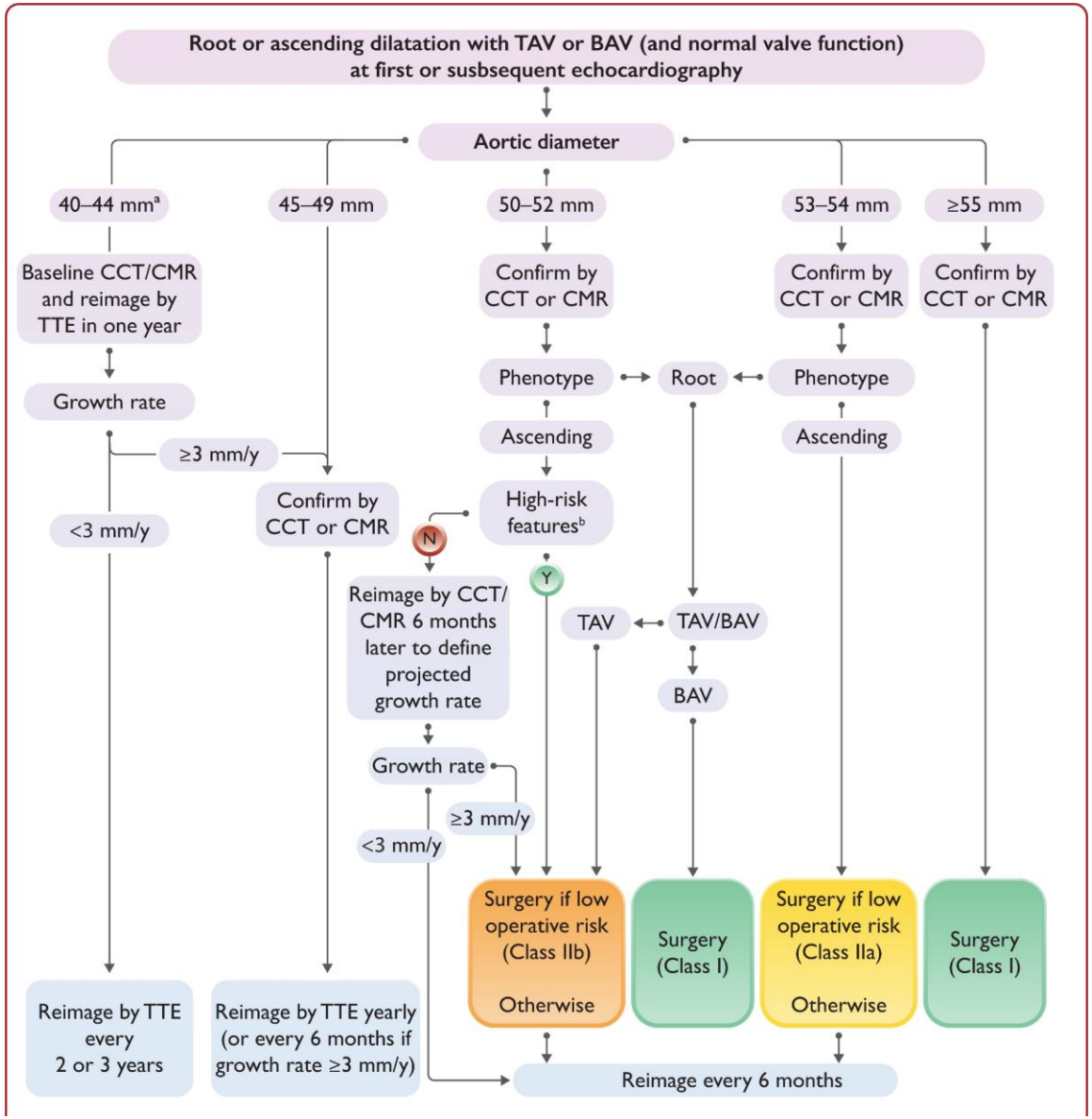
Effet « dose-réponse » entre SAOS et PA



Peppard et al., N Engl J Med 2000

Mécanismes reliant SAOS à la pathologie aortique





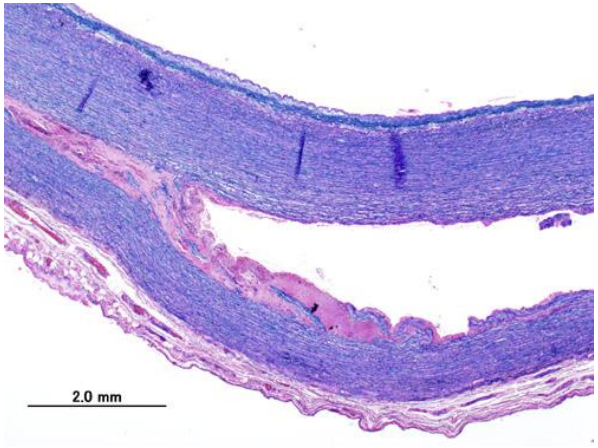
Mazzolai et al., Eur Heart J 2024

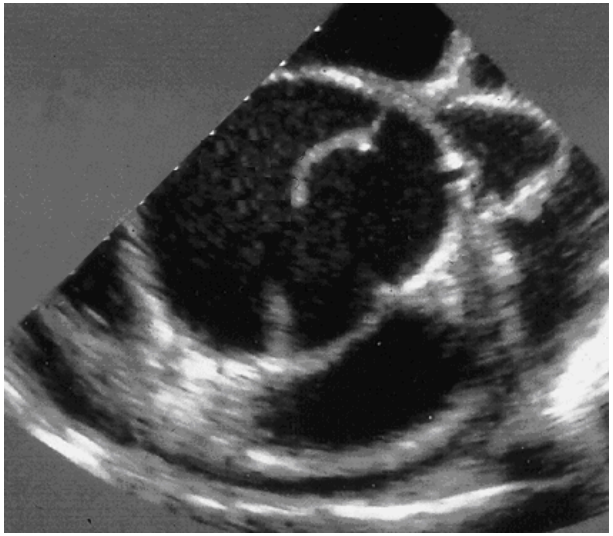
Recommendations	Class[a]	Level[b]
Surgery is recommended in patients with dilatation of the aortic root or ascending aorta with a tricuspid aortic valve and a maximum diameter of ≥55 mm.[172,894,899,904]	I	B
Valve-sparing aortic root replacement is recommended in patients with aortic root dilatation if performed in experienced centres and durable results are expected.[961–965]	I	B
VKAs are recommended lifelong for all patients with a Bentall procedure with an MHV prosthesis.[970,971]	I	B
In patients with dilatation of the tubular ascending aorta who can be offered surgery with low predicted risk,[c] ascending aortic replacement should be considered at a maximum diameter >52 mm.[153,981,983]	IIa	B
In patients undergoing surgery for tricuspid aortic valve disease who have concomitant dilatation of the aortic root or ascending tubular aorta, and low predicted surgical risk, ascending aorta or root replacement should be considered at a maximum diameter ≥45 mm, otherwise ≥50 mm.[70,987–989]	IIa	B
SAPT with low-dose aspirin (75–100 mg per day) should be considered for the first 3 months after valve-sparing aortic surgery when there are no other baseline indications for OAC.	IIa	C
In patients undergoing non-aortic-valve cardiac surgery who have concomitant dilatation of the ascending aorta or aortic root with a maximum diameter ≥50 mm, concomitant aortic surgery should be considered.[70,990,991]	IIa	C
Ascending aortic or root replacement may be considered at a maximum diameter of ≥50 mm in patients with proximal aorta dilatation who can be offered surgery with low predicted risk[c] and present with any of the following:[153–155,891,892] • Growth of the aortic diameter ≥3 mm per year • Resistant hypertension[d] • Short stature <1.69 m • Root phenotype • Aortic length[e] >11 cm • Age <50 years • Desire for pregnancy • Aortic coarctation	IIb	B

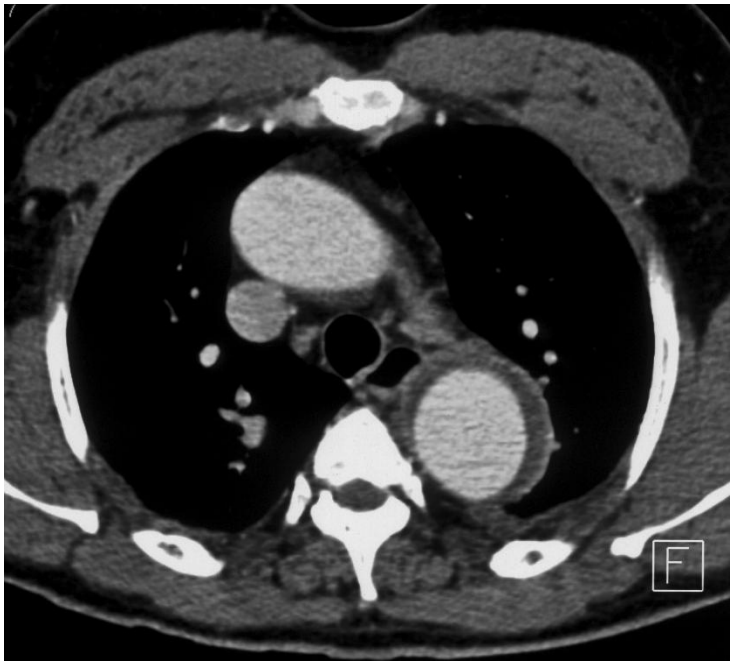
MHV, mechanical heart valve; OAC, oral anticoagulation; SAPT, single antiplatelet therapy; VKA, vitamin K antagonist.
For heritable thoracic aortic disease and bicuspid aortic valve-related thoracic aortic aneurysm refer to *Section 10*.
[a]Class of recommendation.
[b]Level of evidence.
[c]Individual patient's risk <3%.
[d]Hypertension that cannot be adequately controlled despite use of three or more agents recommended by a physician with expertise in the management of hypertension.
[e]Curvilinear distance at aortic centreline between the ventriculo-aortic junction and the origin of the innominate artery.

Mazzolai et al., Eur Heart J 2024

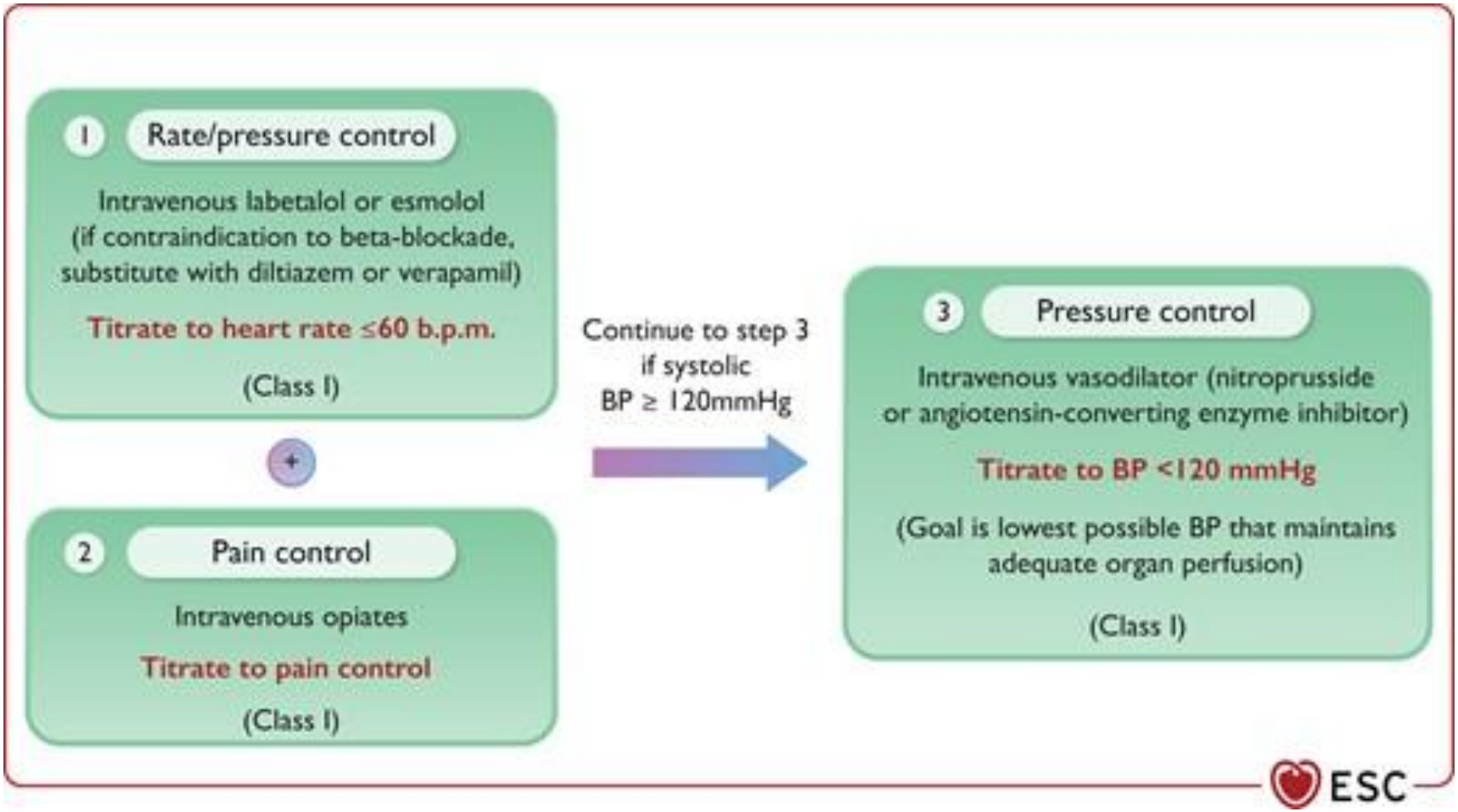
HTA et DA/HA







- Incidence
  - 0,5 à 3/100.000/an
- Facteurs prédisposants
  - Anomalies structurelles de la paroi aortique
    - Constitutionnelles (Marfan, EDV, Loeys-Dietz)
    - Acquises (athérosclérose, aortite)
  - **HTA ++**
- **2/3 DA ont ATCD d'HTA**



Mazzolai et al., Eur Heart J 2024

Suivi à long terme

- Radiologique
  - Complications
  - Récidives

- **Tensionnel**
  - **Clinique**
  - **Automesure**
  - **MAPA**
  - **PAS < 120 mmHg après DA**
  - **Plusieurs anti-HTA +++**
  - **Intérêt +++ des béta-bloquants**
  - **Eviter les efforts statiques**

103 patients opérés de DA/HA de type A (77% hommes, 85% de DA)

55% connus comme hypertendus avant DA/HA

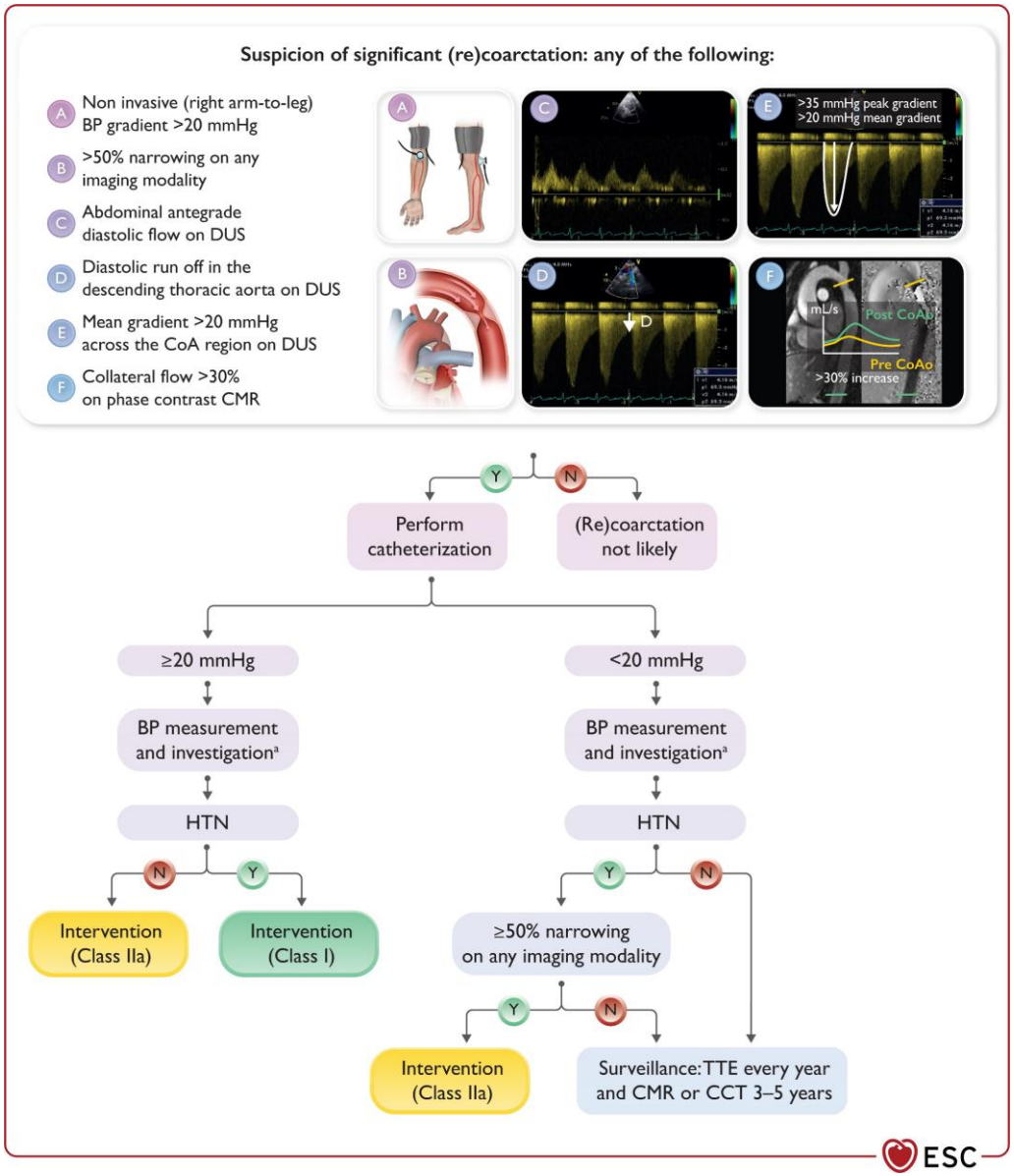
N ttt anti-HTA au suivi = 2,62 ± 1,17 (79% BB, 70% IEC ou ARA2, 48% CaB)

PAc = 143/80 mmHg

31% ont PASc < 135 mmHg

31% HTA résistante

Baguet et al., Int J Cardiol 2012



Mazzolai et al., Eur Heart J 2024

HTA et AAA

Définition de l'AAA

- Définition générale : dilatation aortique avec perte de parallélisme des parois

- Cause : athérome +++ (FRCV dont **HTA**), infection…

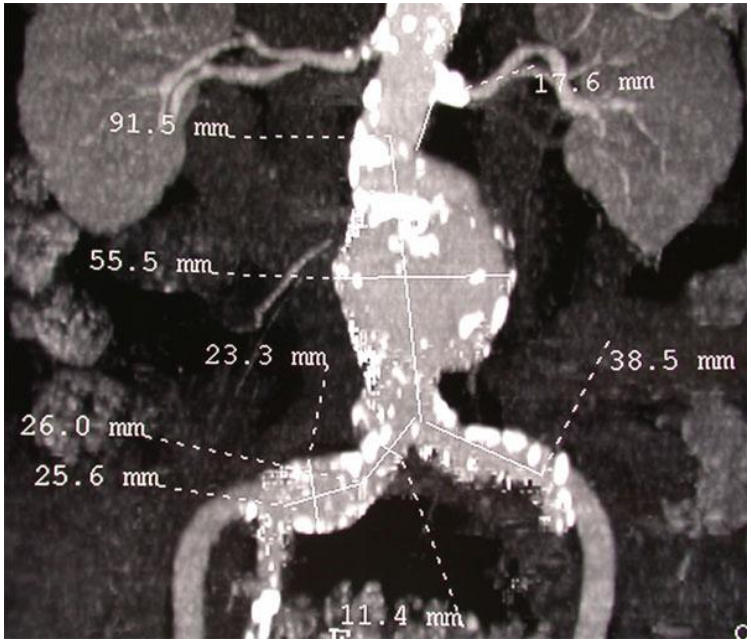
- En pratique : diamètre aortique $\geq$ 30 mm
- (Autre : diamètre aortique > 50%)

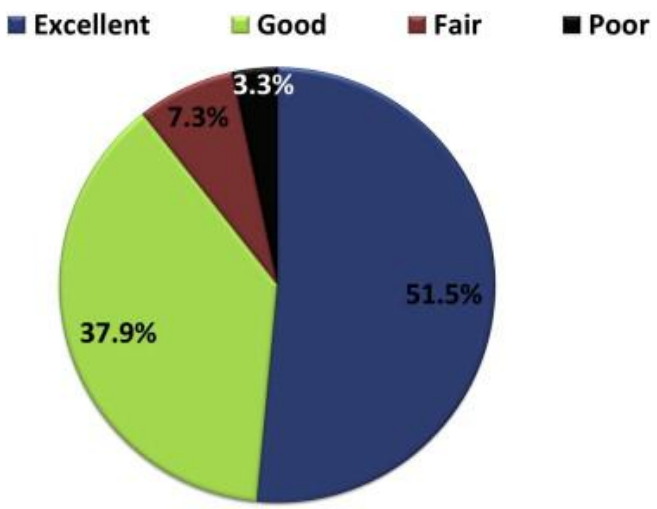
- Echographie +++ (TDM, IRM)
- Localisation

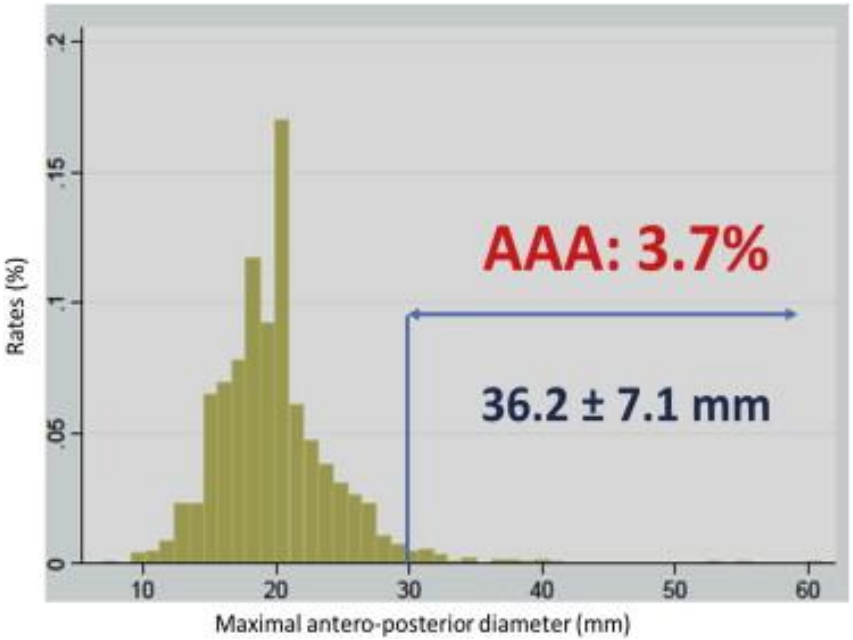
Facteurs de risque

- **Association +++**
  - Age
  - Sexe masculin
  - ATCD personnel de pathologie athéromateuse
  - Tabagisme
  - **HTA**
  - ATCD familial d'AAA
- Association faible
  - Dyslipidémie
- Association inverse
  - Diabète

Tromso study, risque d'AAA à 7 ans : tabac ++, **HTA (OR=1,54),** hypercholestérolémie, âge et sexe masculin







Etude E2T3A
Mai 2011 (1 semaine), 79 centres français
Durant EDC, AAA sous rénal si diamètre ≥ 30 mm
N=1.382 ≥ 65 ans
50 AAA (3,7%), aucun chez femme < 75 ans

Indication de l'EDC = 25% HTA
HTA : 68.9% si pas d'AAA vs 66.0% si AAA

Aboyans et al., Am J Cardiol 2014

Recommendations	Class[a]	Level[b]
Screening for AAA with DUS:		
Is recommended in men aged ≥65 years with a history of smoking to reduce the risk of death from ruptured AAA.[221–224,234]	I	A
May be considered in men aged ≥75 years (irrespective of smoking history) or in women aged ≥75 years who are current smokers, hypertensive, or both.[227,228,235–237]	IIb	C
Family AAA screening with DUS:		
Is recommended for FDRs of patients with AAA aged ≥50, unless an acquired cause can be clearly identified.[231]	I	C
Opportunistic AAA screening with DUS:		
Should be considered in symptomatic/asymptomatic PAD patients.[233]	IIa	B
Should be considered in men aged ≥65 years and in women aged ≥75 years during TTE.[232]	IIa	B

AAA, abdominal aortic aneurysm; FDR, first-degree relative; DUS, duplex ultrasound; PAD, peripheral arterial disease; TTE, transthoracic echocardiography.
Smoking is defined as lifetime smoking of >100 cigarettes or equivalent. This threshold is used to distinguish between substantial exposure and occasional use.
[a]Class of recommendation.
[b]Level of evidence.

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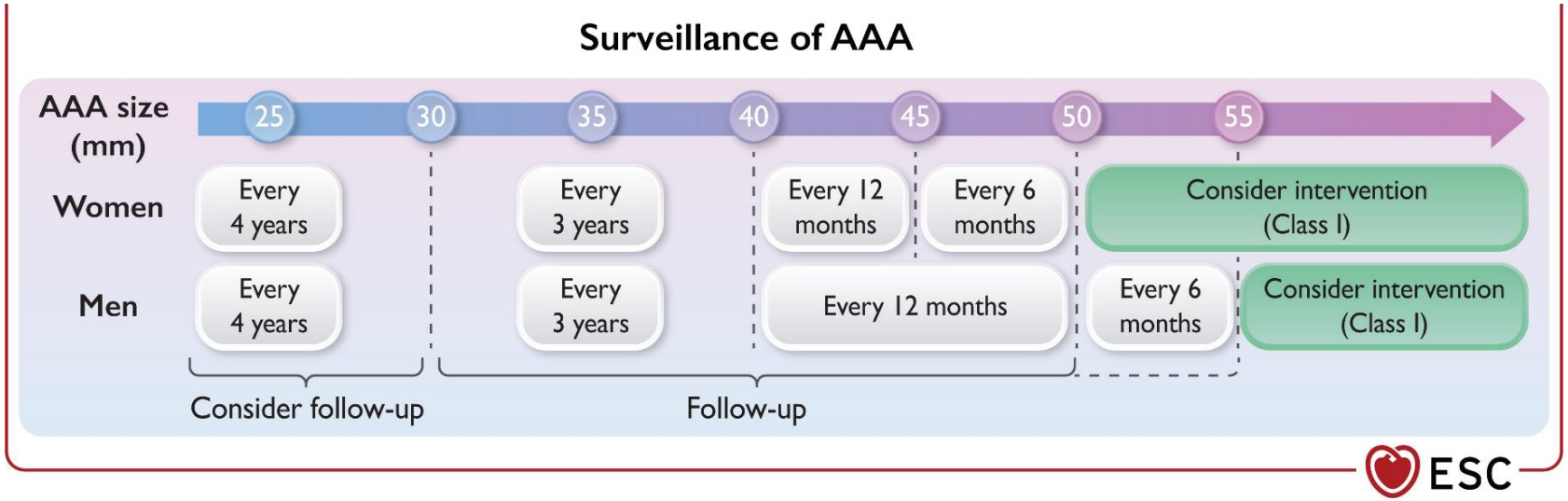

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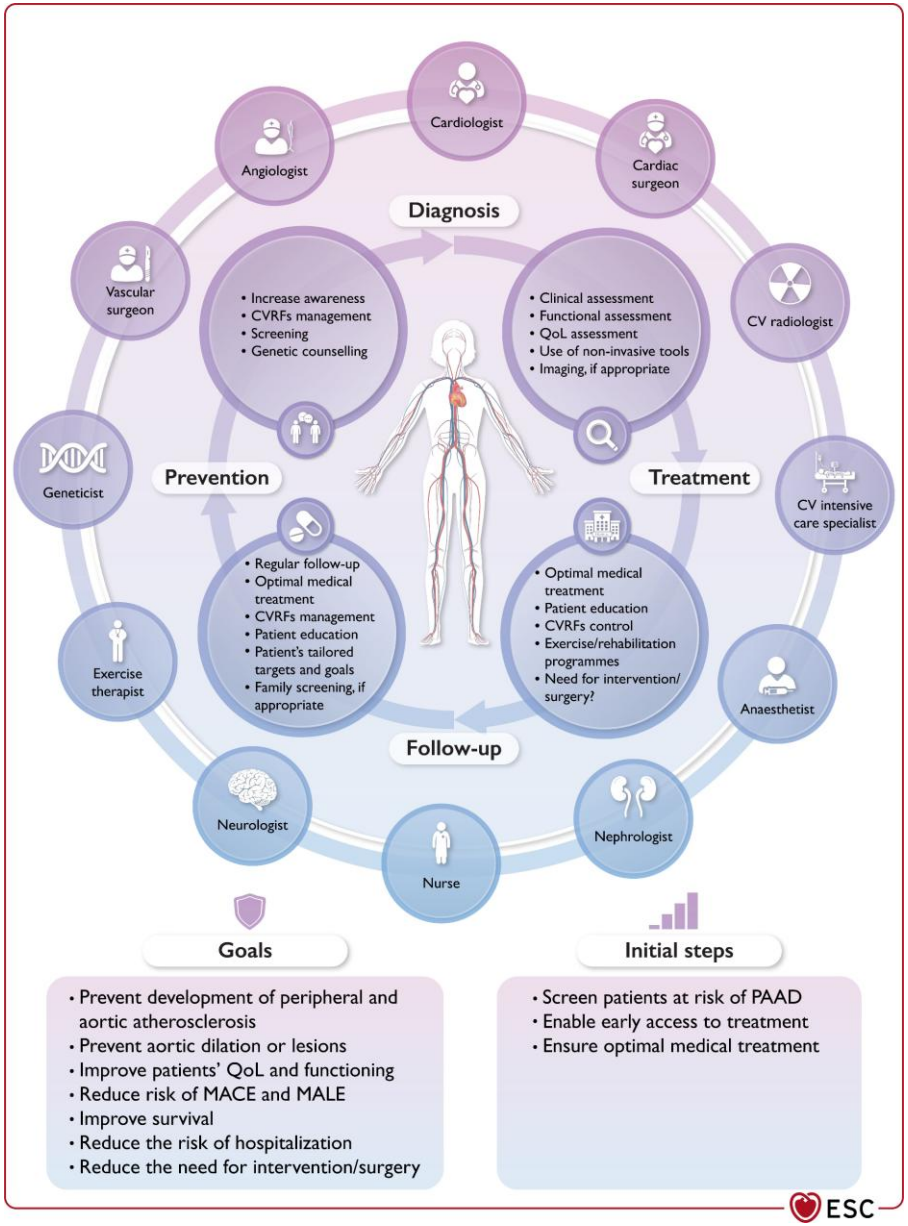

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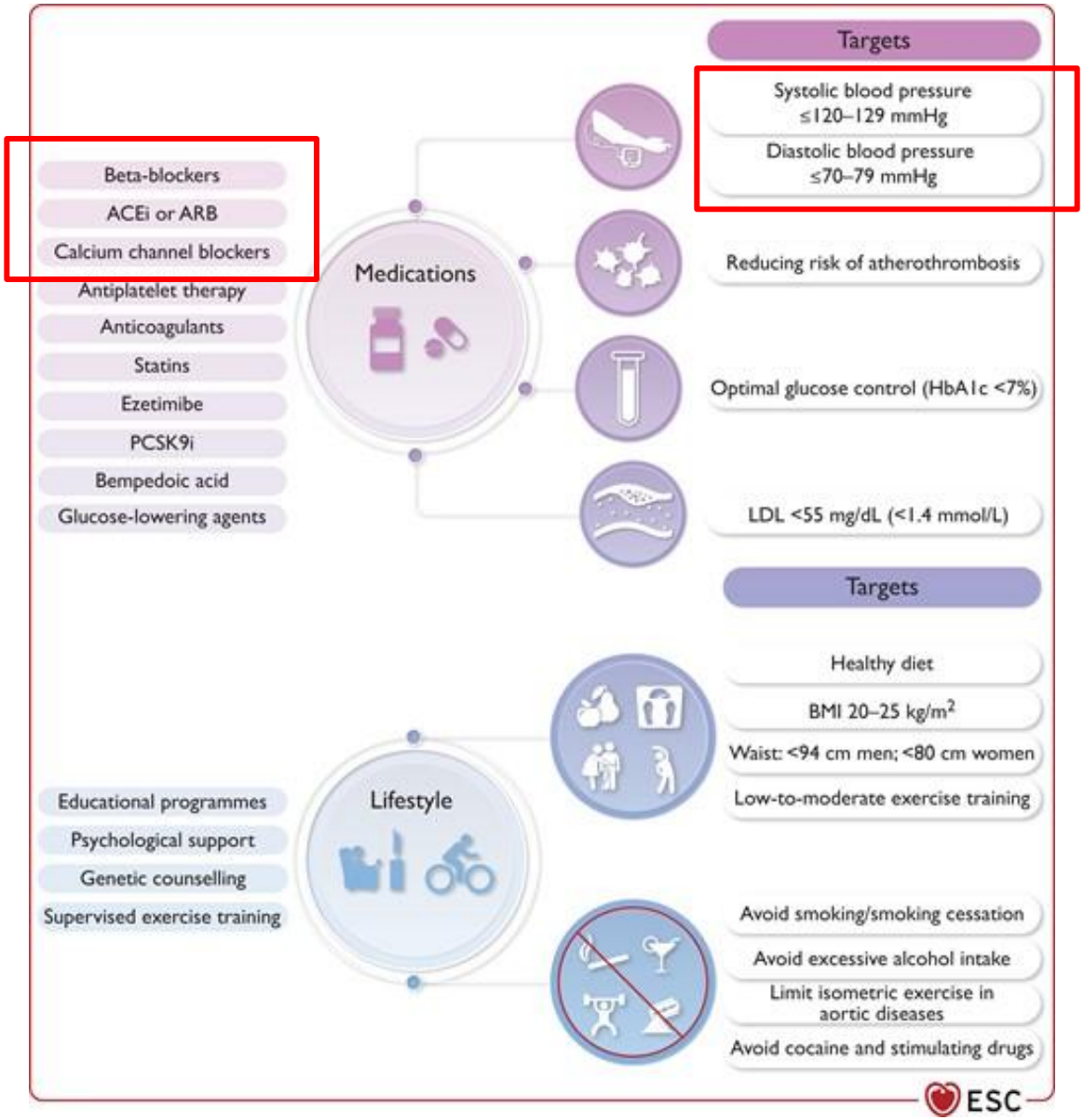

Mazzolai et al., Eur Heart J 2024

Merci