63° CONGRESSO NAZIONALE SIGG

GLI ANZIANI: LE RADICI DA PRESERVARE

ROMA 28 novembre 01 dicembre 2018 Auditorium della Tecnica, Roma

HOT TOPICS IN CARDIOLOGIA GERIATRICA

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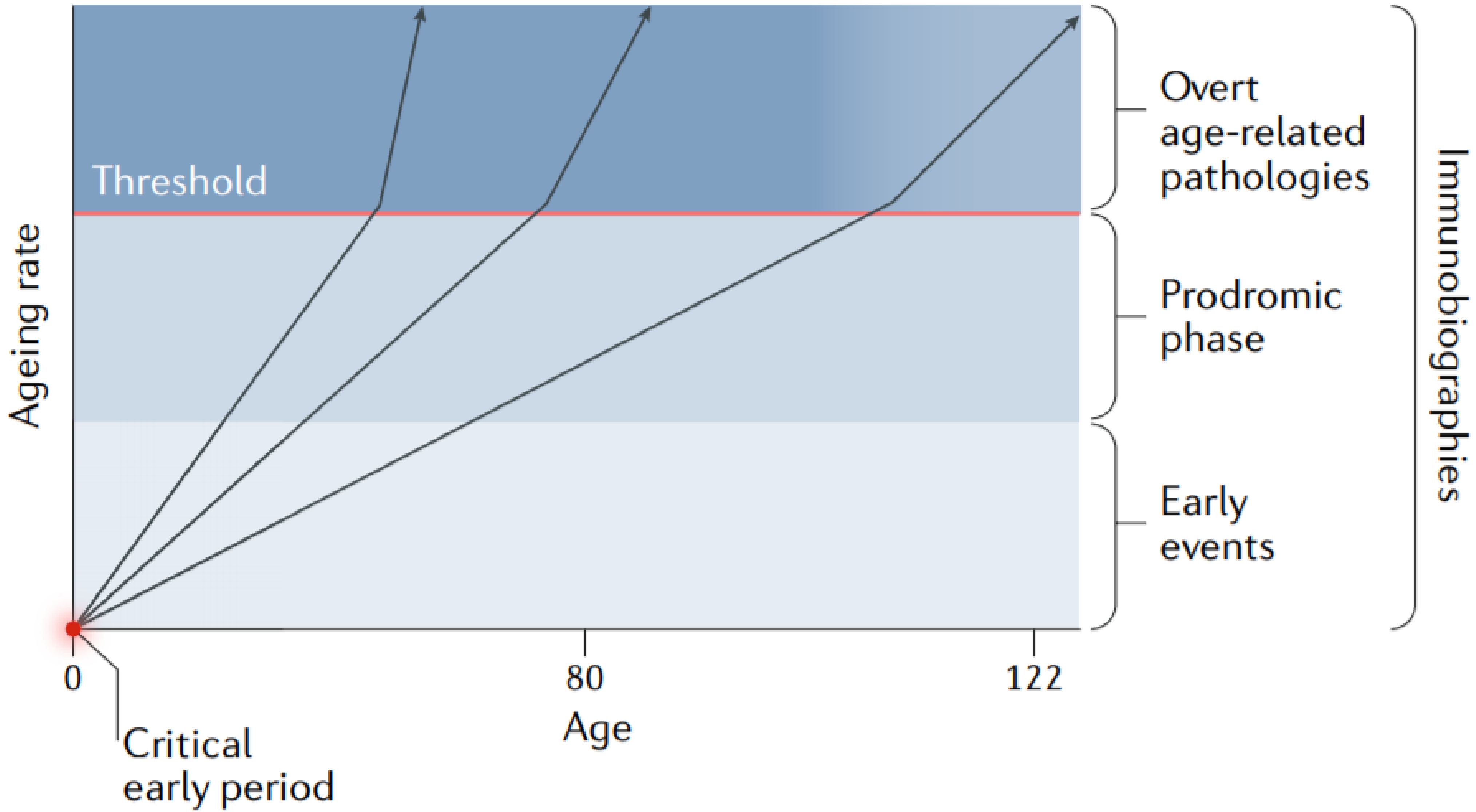
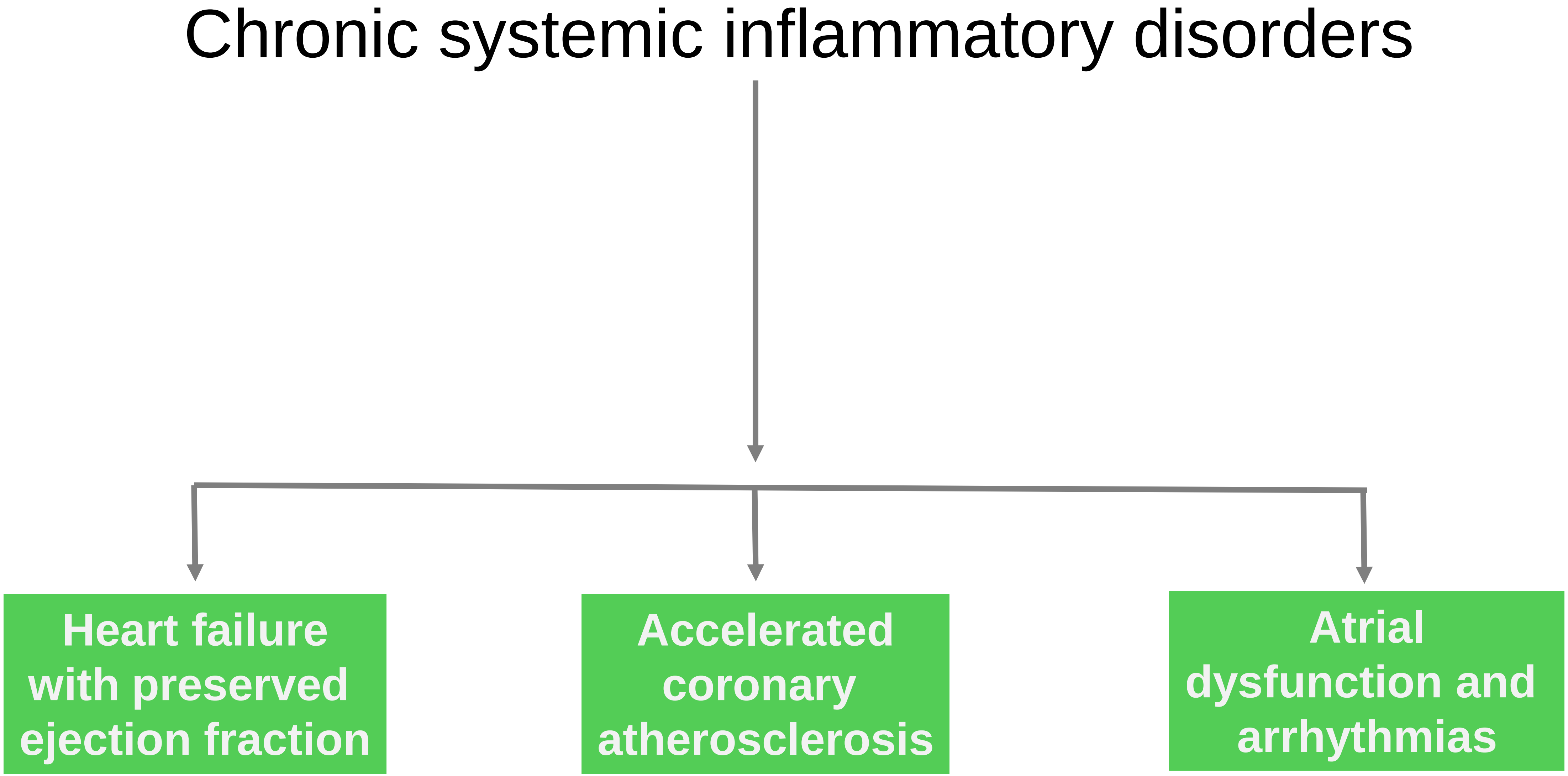
Università degli Studi di Napoli Federico II

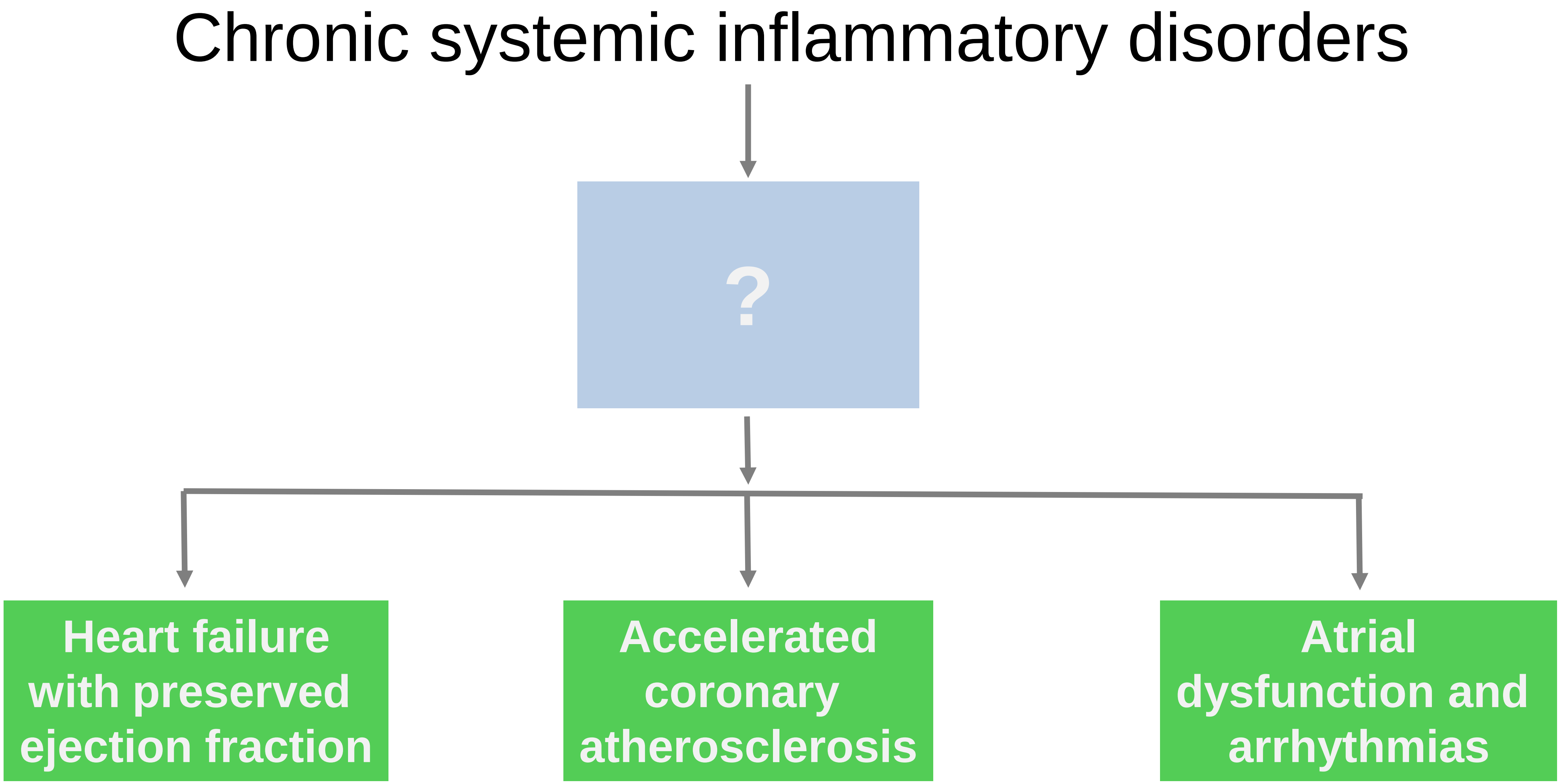
INFLAMMATION AND AGE-RELATED CARDIOVASCULAR DISEASES

Inflammation, age trajectories and age-related diseases



Franceschi C. et al. Nat Rev Endocrinol 2018


Chronic systemic inflammatory disorders
Heart failure with preserved ejection fraction
Accelerated coronary atherosclerosis
Atrial dysfunction and arrhythmias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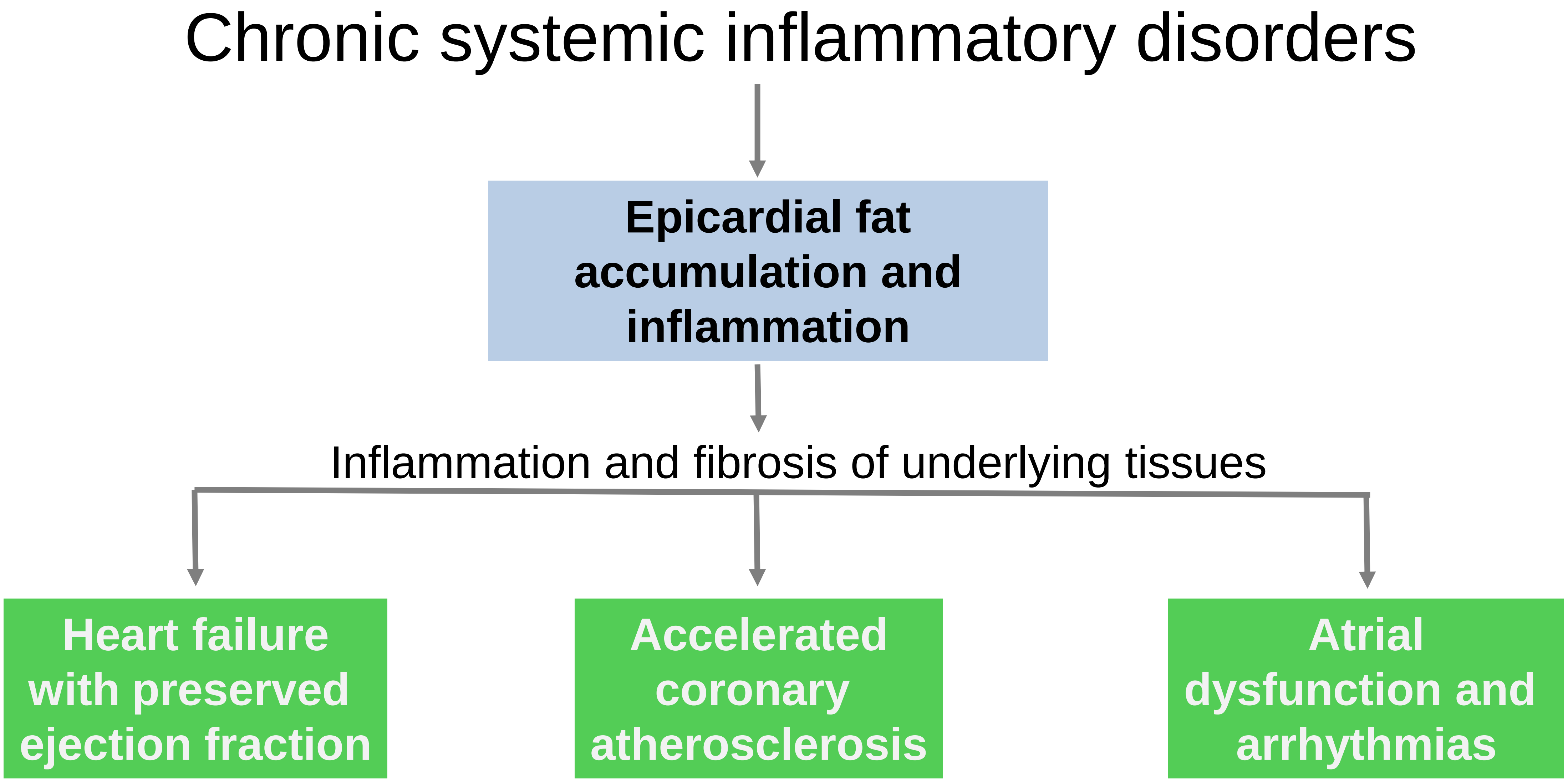
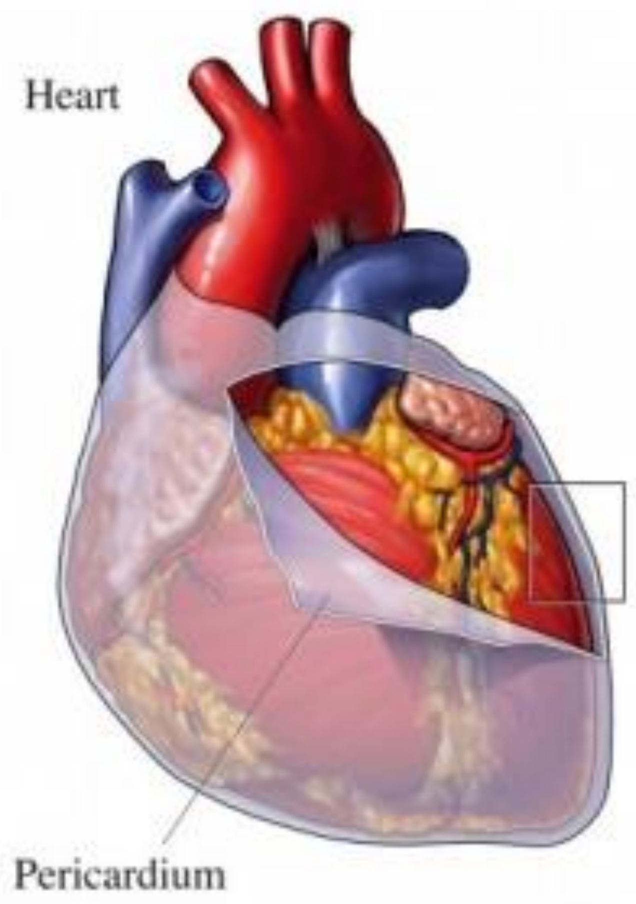
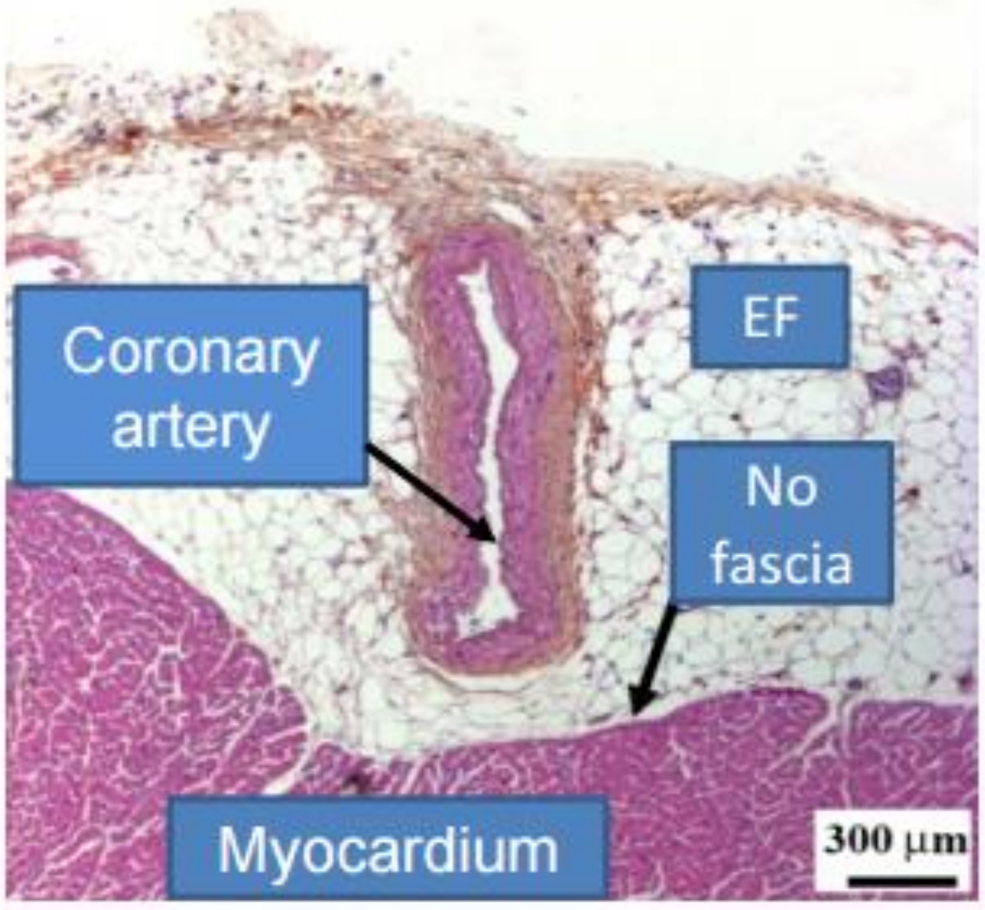
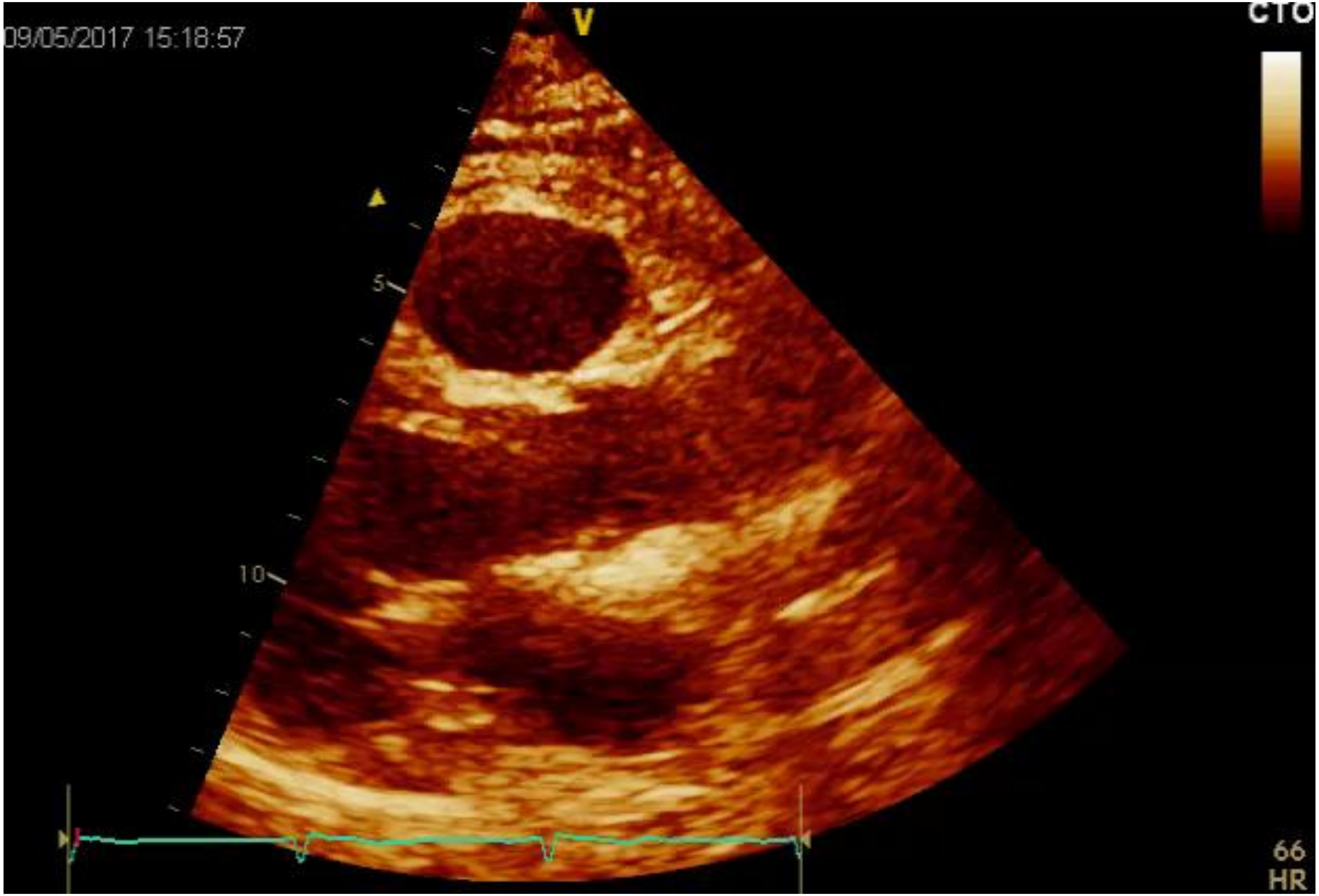

Chronic systemic inflammatory disorders
Epicardial fat accumulation and inflammation
Inflammation and fibrosis of underlying tissues
Heart failure with preserved ejection fraction
Accelerated coronary atherosclerosis
Atrial dysfunction and arrhythmias

Epicardial fat: More than just an «EPI» phenomenon



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Chronic systemic inflammatory disorders

Epicardial fat accumulation and inflammation

Inflammation and fibrosis of underlying tissues

Heart failure with preserved ejection fraction

Accelerated coronary atherosclerosis

Atrial dysfunction and arrhythmias

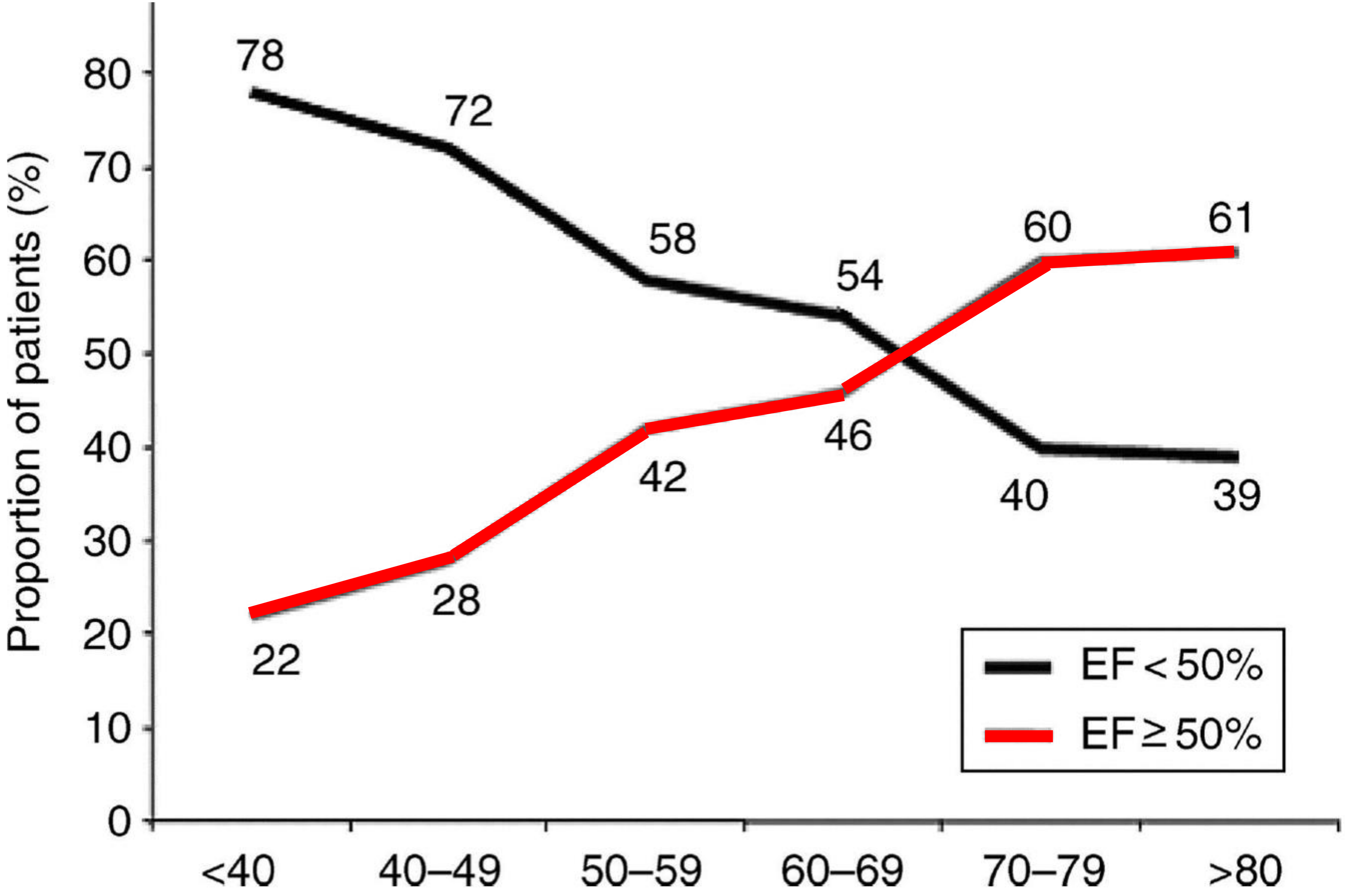
HF nell’anziano: un quadro clinico sostanzialmente differente

- L’IC negli ultra-80enni colpisce principalmente donne con ipertensione sistolica isolata, funzione cardiaca sistolica conservata e comorbilità extracardiaca

- L’IC negli ultra-80enni è fondamentalmente diversa da quella dei soggetti di media età, nei quali predomina la cardiopatia ischemica, una marcata disfunzione sistolica ed una bassa prevalenza di comorbilità extracardiaca

Rich MW & Kitzman DW, AJGC 2000

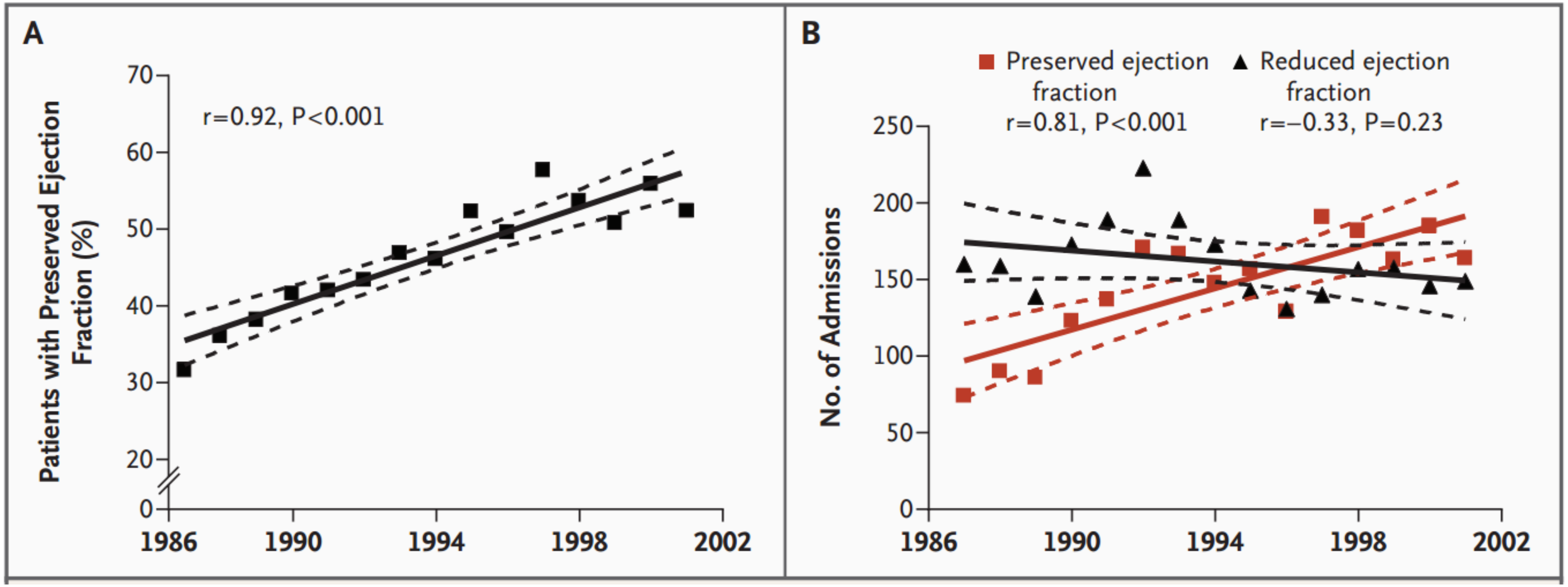
Percentage of HF pts with preserved and reduced EF by age group



ORIGINAL ARTICLE

Trends in Prevalence and Outcome of Heart Failure with Preserved Ejection Fraction

Theophilus E. Owan, M.D., David O. Hodge, M.S., Regina M. Herges, B.S.,
Steven J. Jacobsen, M.D., Ph.D., Veronique L. Roger, M.D., M.P.H.,
and Margaret M. Redfield, M.D.



The NEW ENGLAND JOURNAL of MEDICINE

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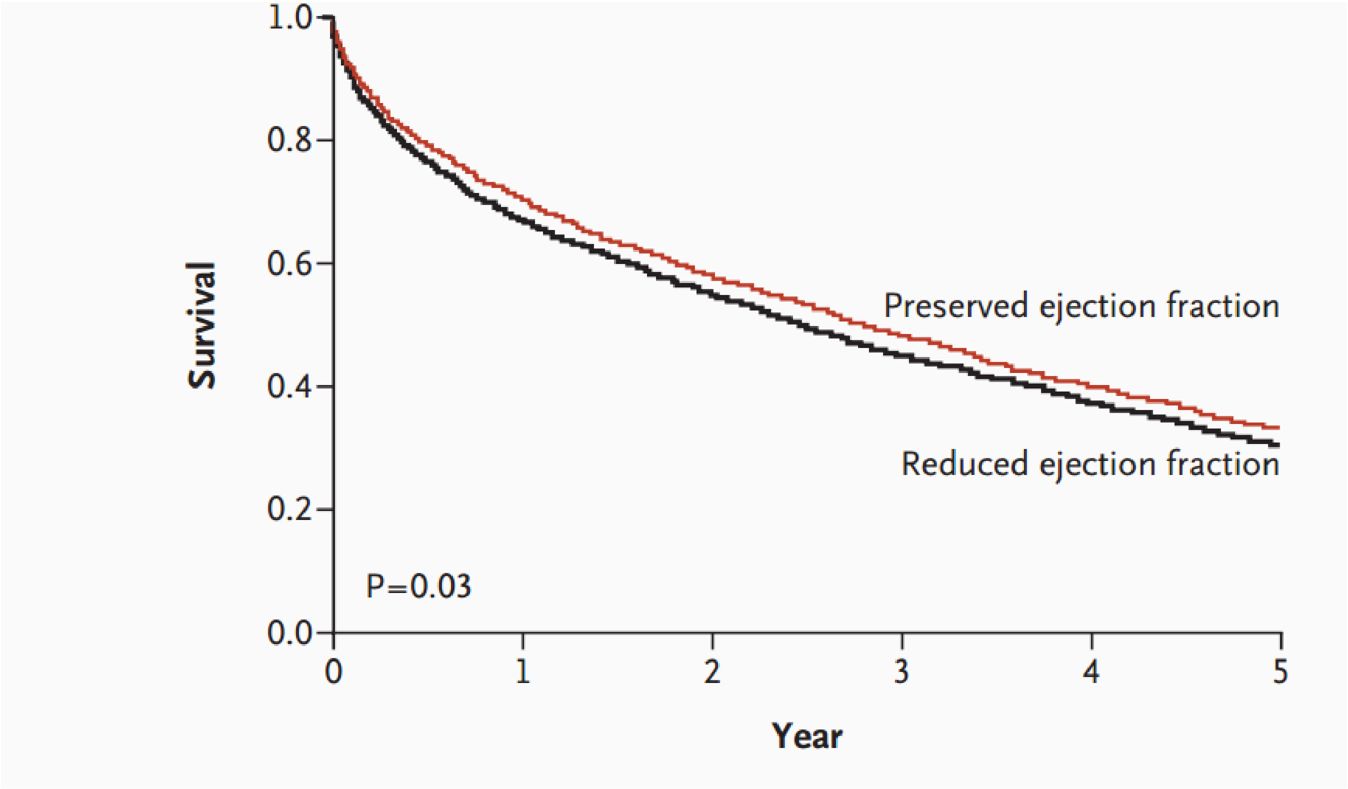
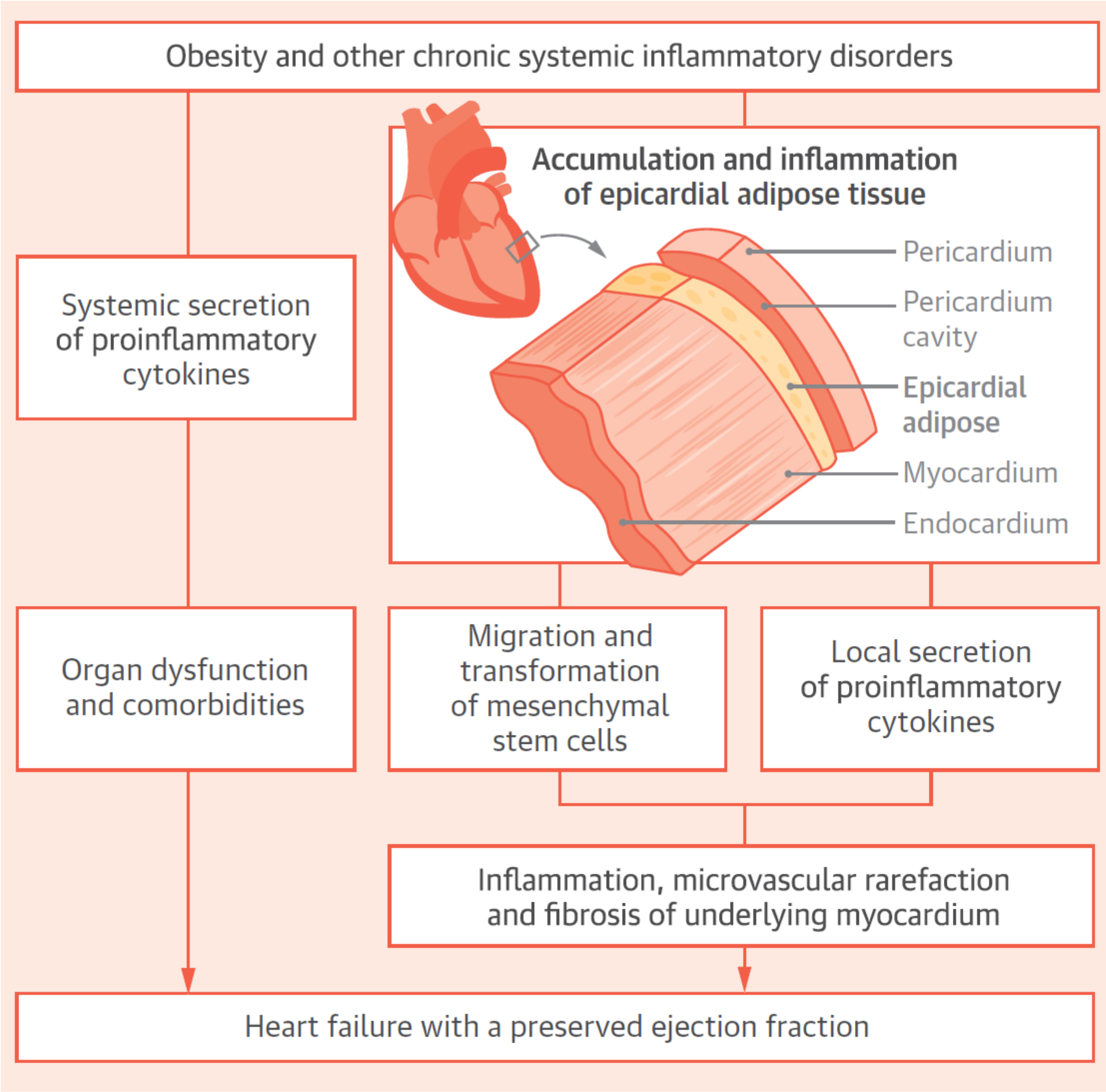
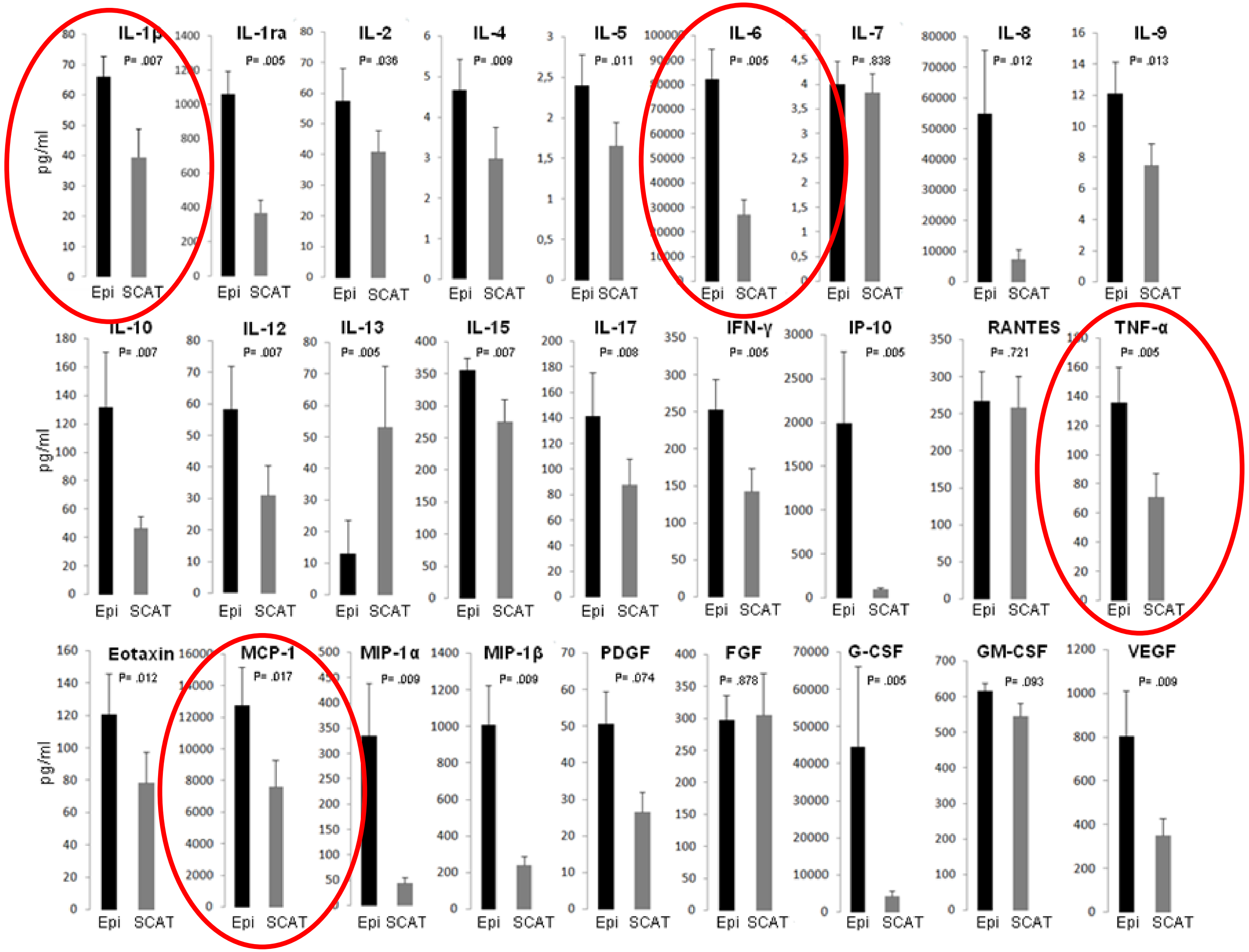




Packer M. JACC 2018

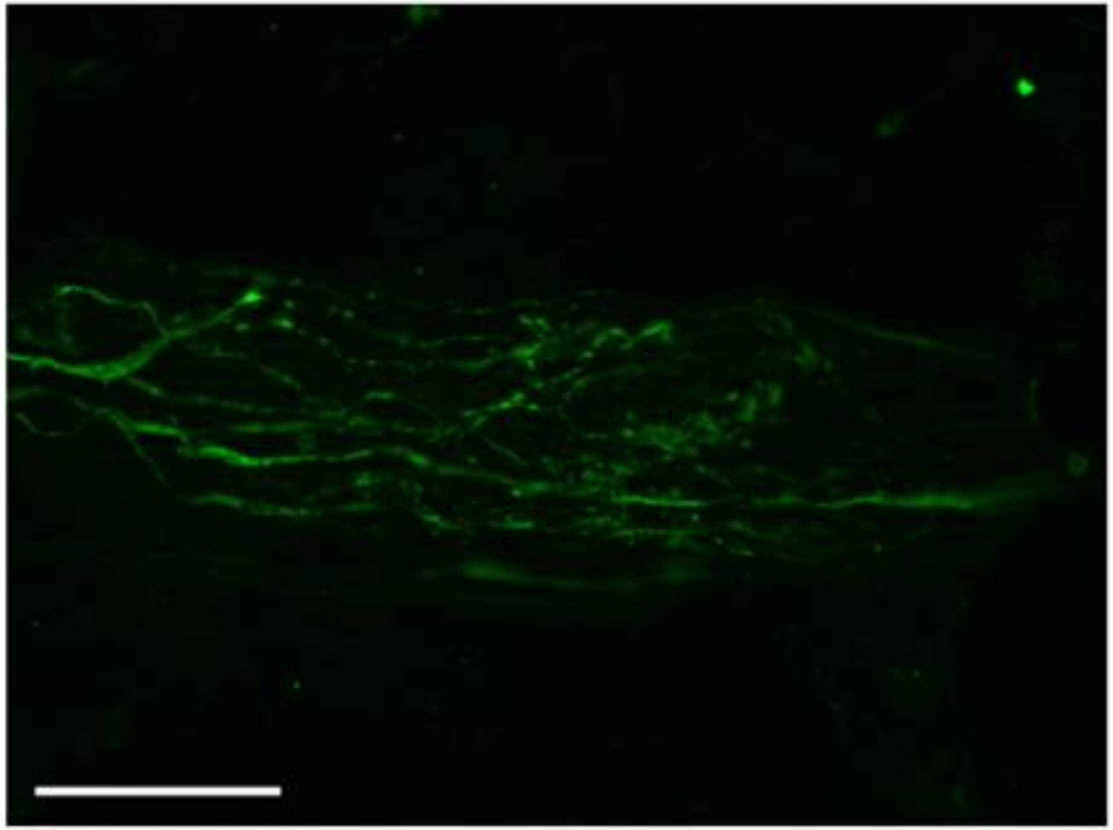
Epicardial adipose tissue is a source of inflammatory mediators in elderly pts with HFpEF



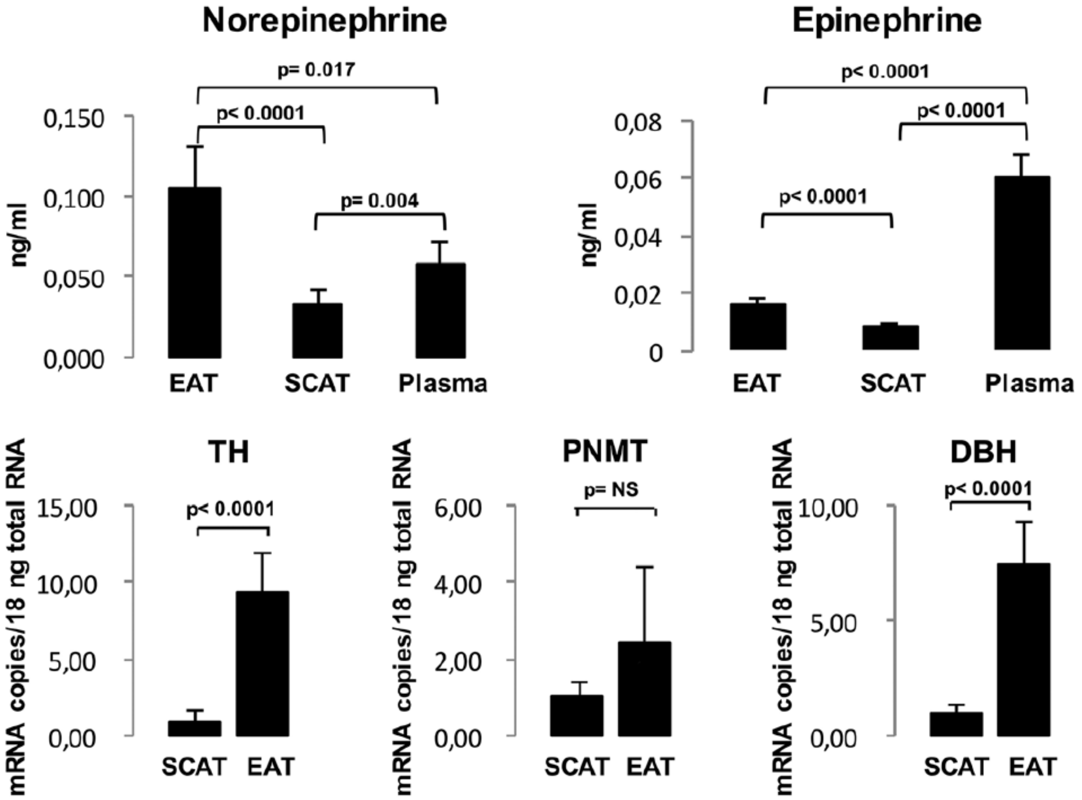
Parisi V et al, Int J Cardiol 2015

Epicardial adipose tissue is a source of catecholamine production and contributes to cardiac denervation in HF

Adrenergic fibers in EAT

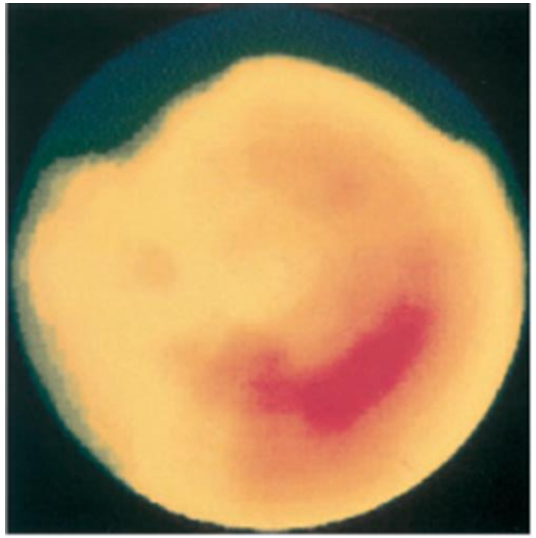


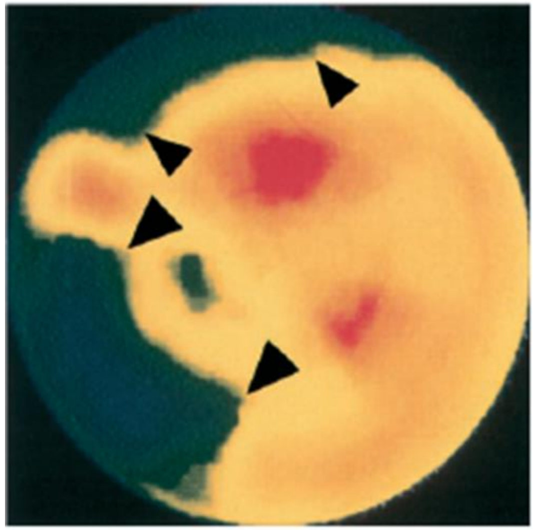
EAT endogenous production of catecholamines

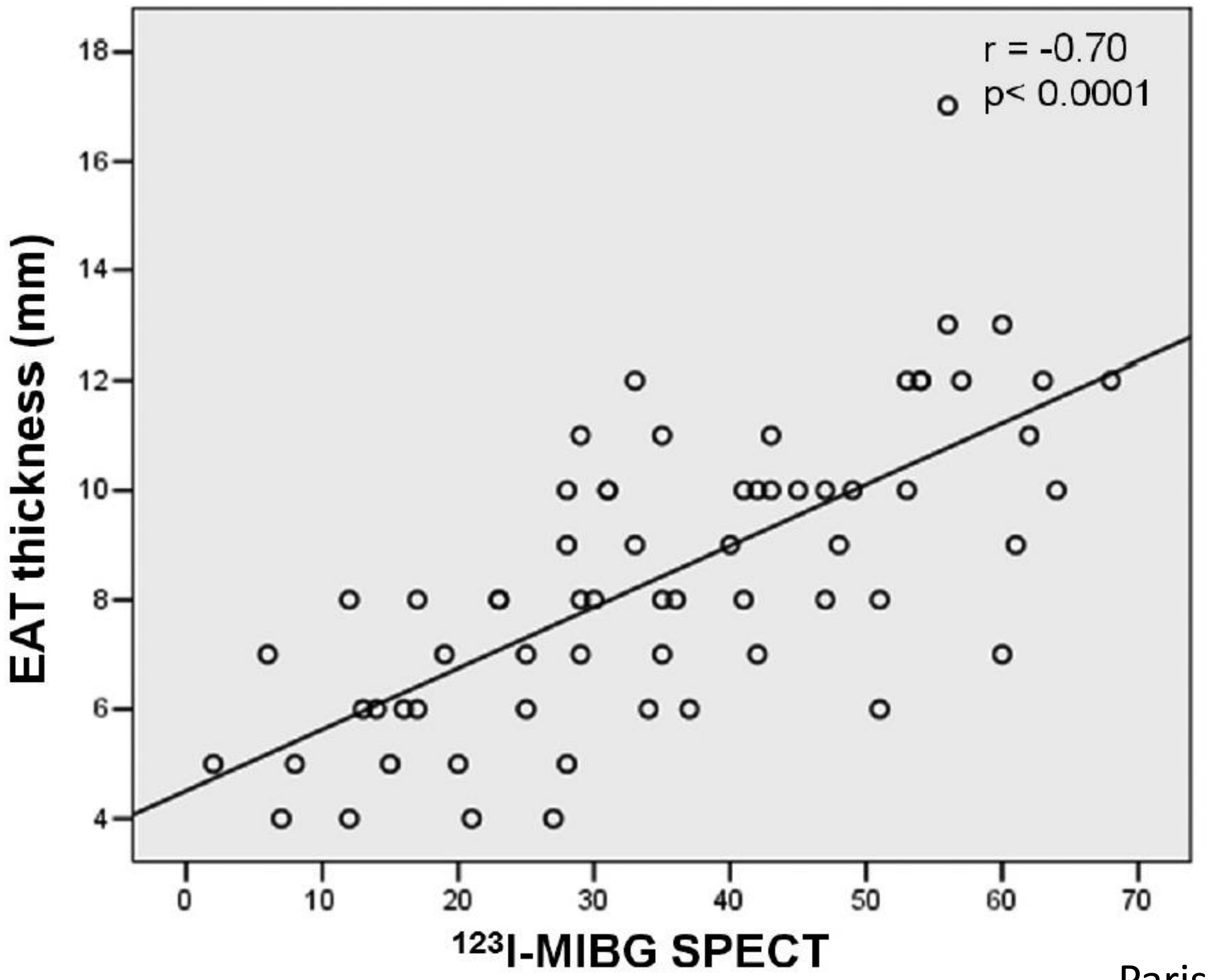


Parisi V et al, Circ Res 2016

Increased epicardial adipose tissue thickness correlates with cardiac adrenergic denervation in HF

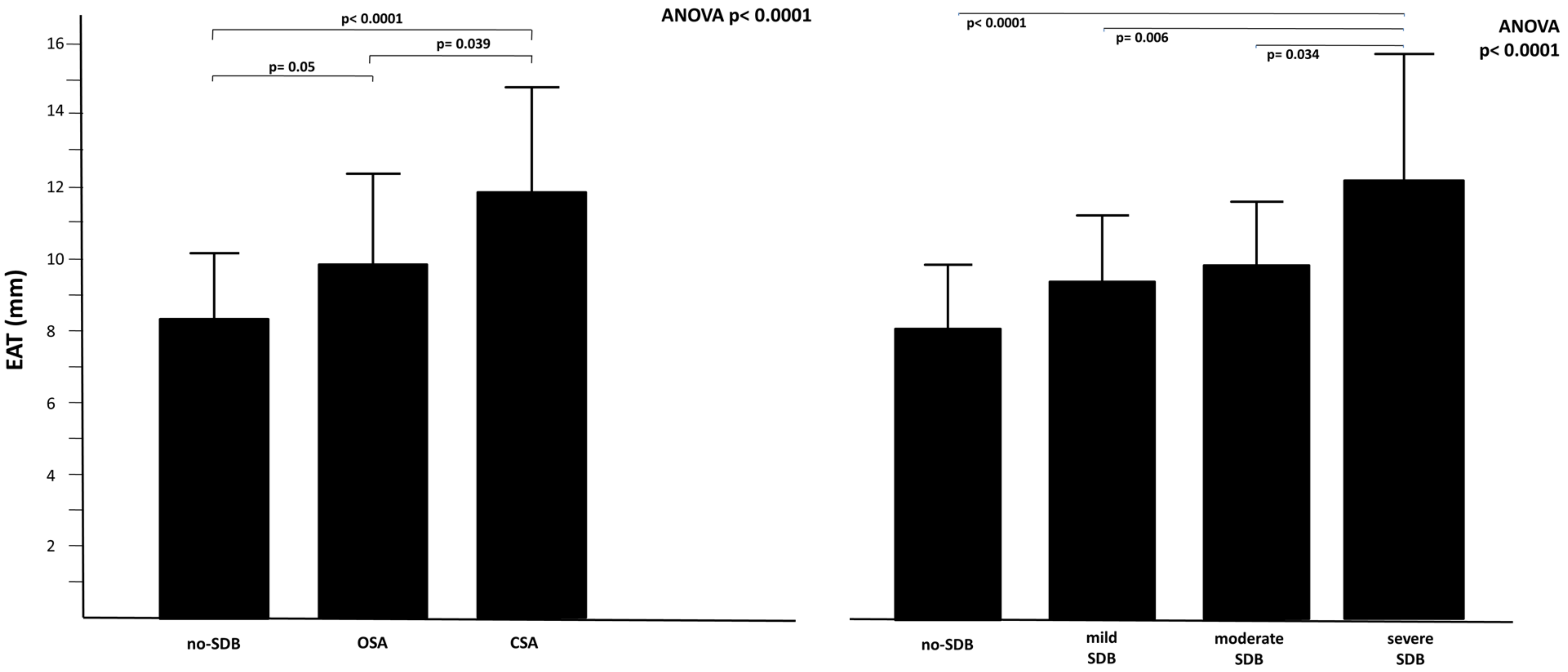






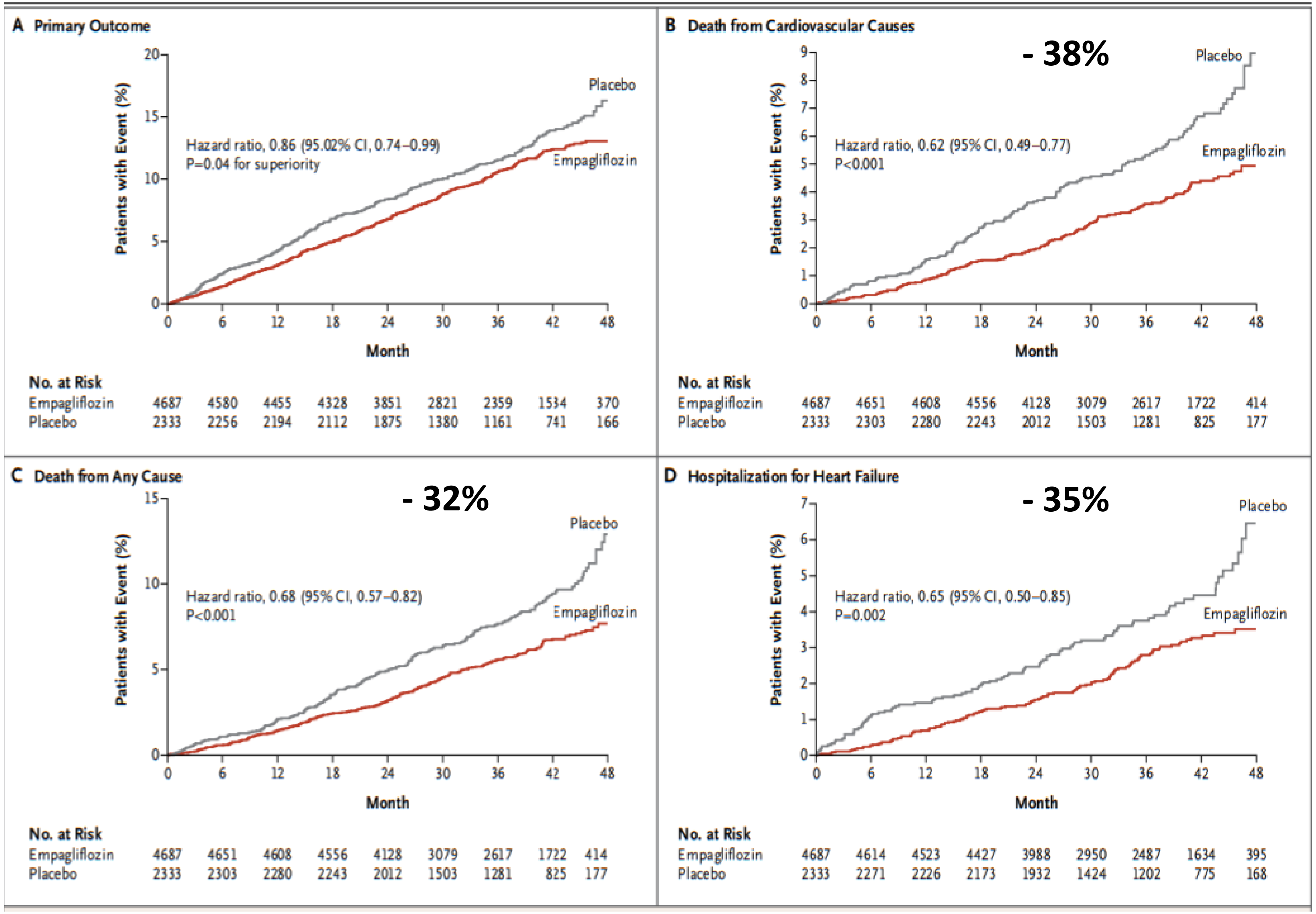
Parisi V et al, Circ Res 2016

Epicardial adipose tissue and sleep disordered breathing in HF



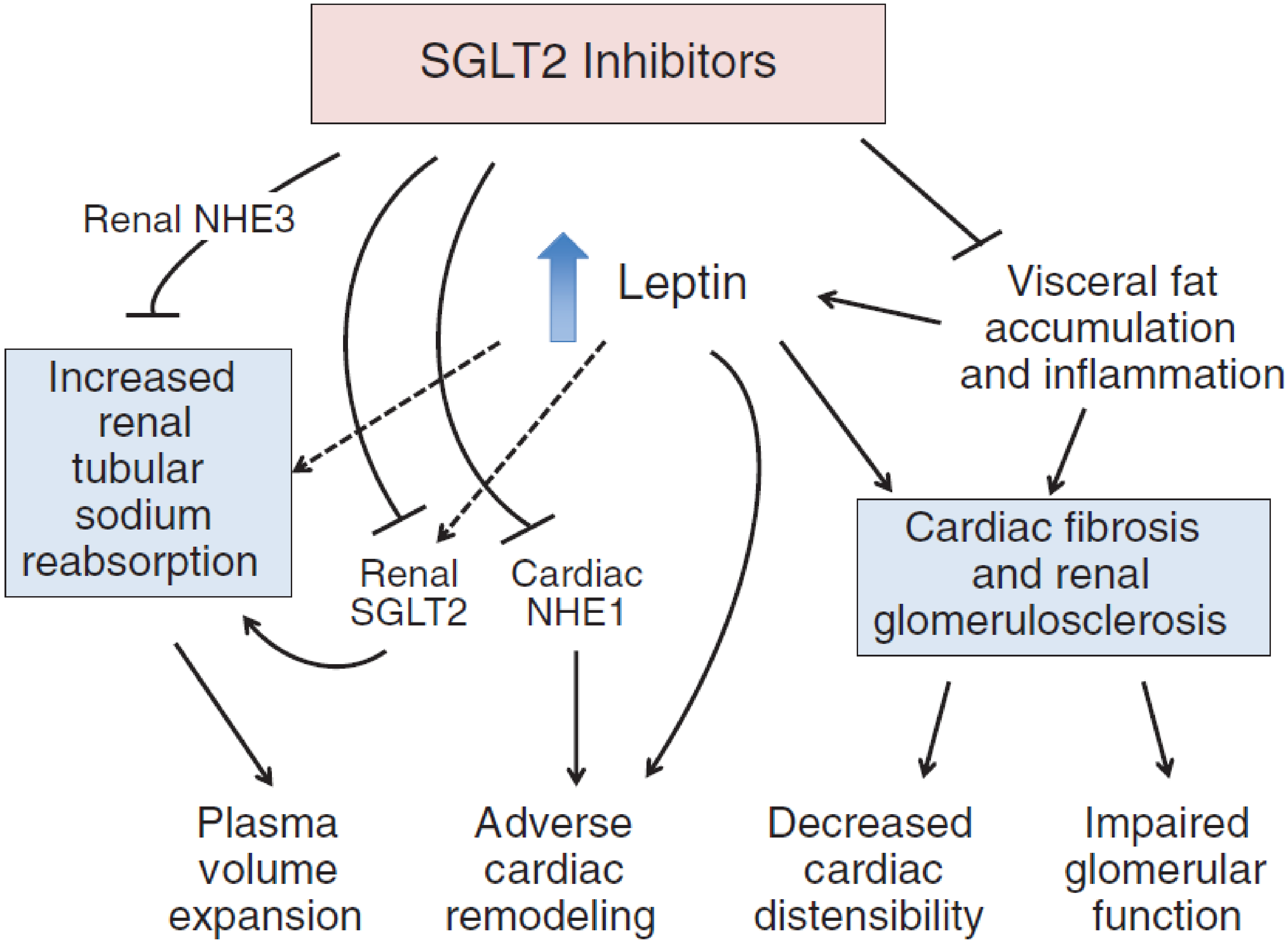
Parisi V et al. Nutr Metab Cardiovasc Dis 2018

Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes (EMPAREG trial)



N Engl J Med 2015

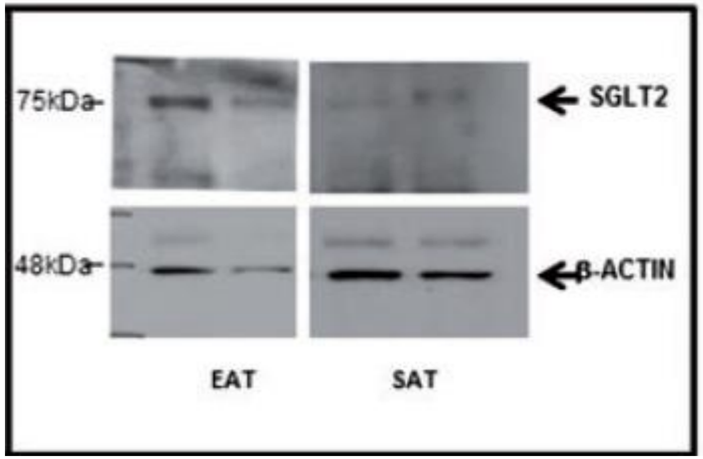
SGLT2 inhibitors may block the deleterious effects of leptin leading to HFpEF



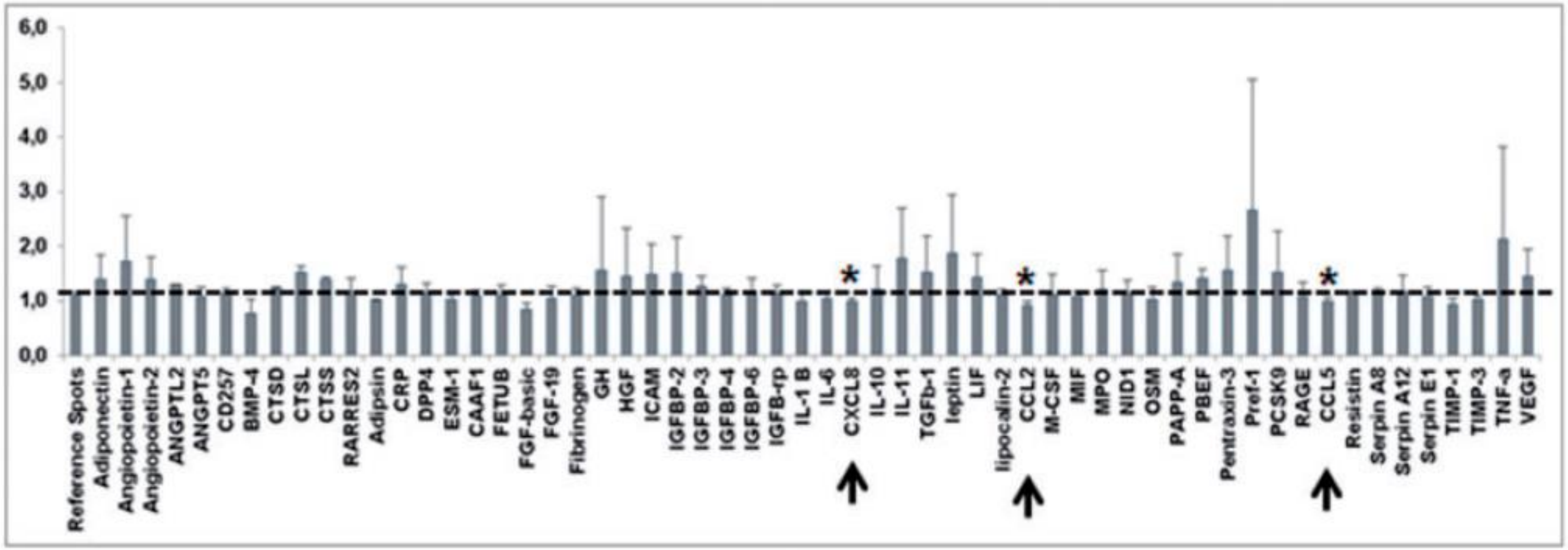
Packer M. Diabetes Obese Metab 2018

Anti-inflammatory effects of dapaglifozion on human epicardial adipose tissue

SGLT2 in EAT

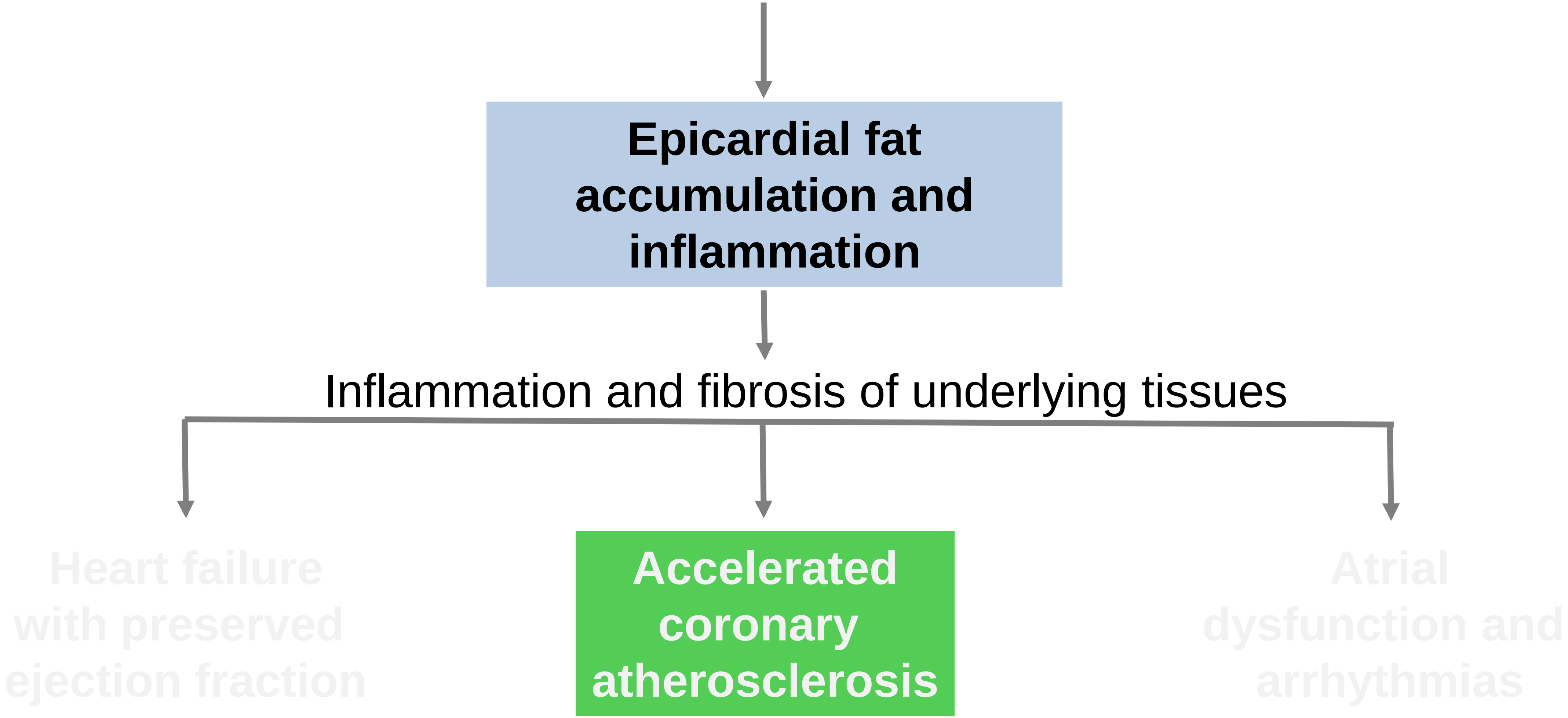


Dapaglifozin/Contol ratio on EAT derived pro-inflammatory cytokines

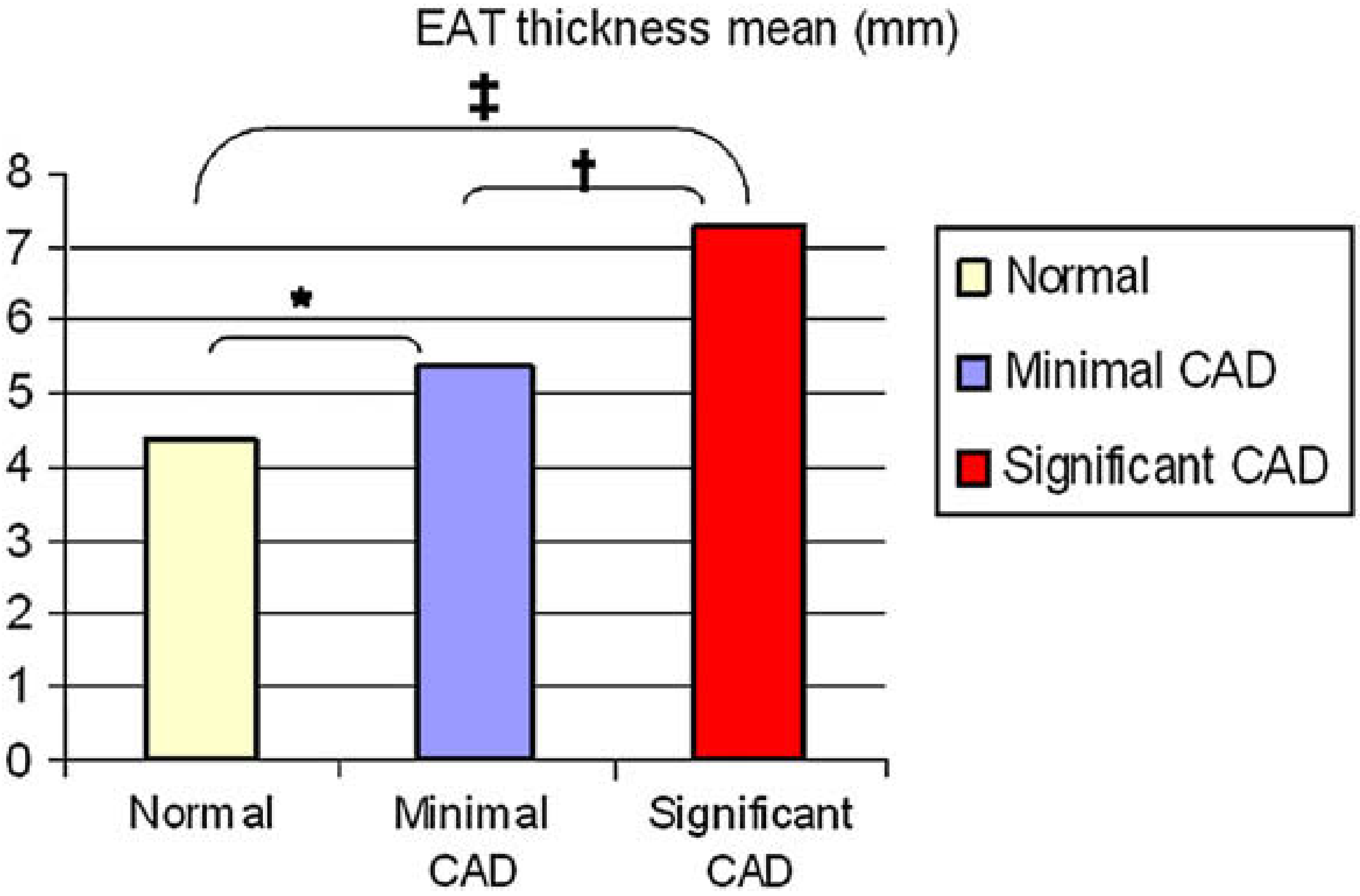


Diaz-Rodriguez E et al. Cardiovascular Research 2018

Chronic systemic inflammatory disorders



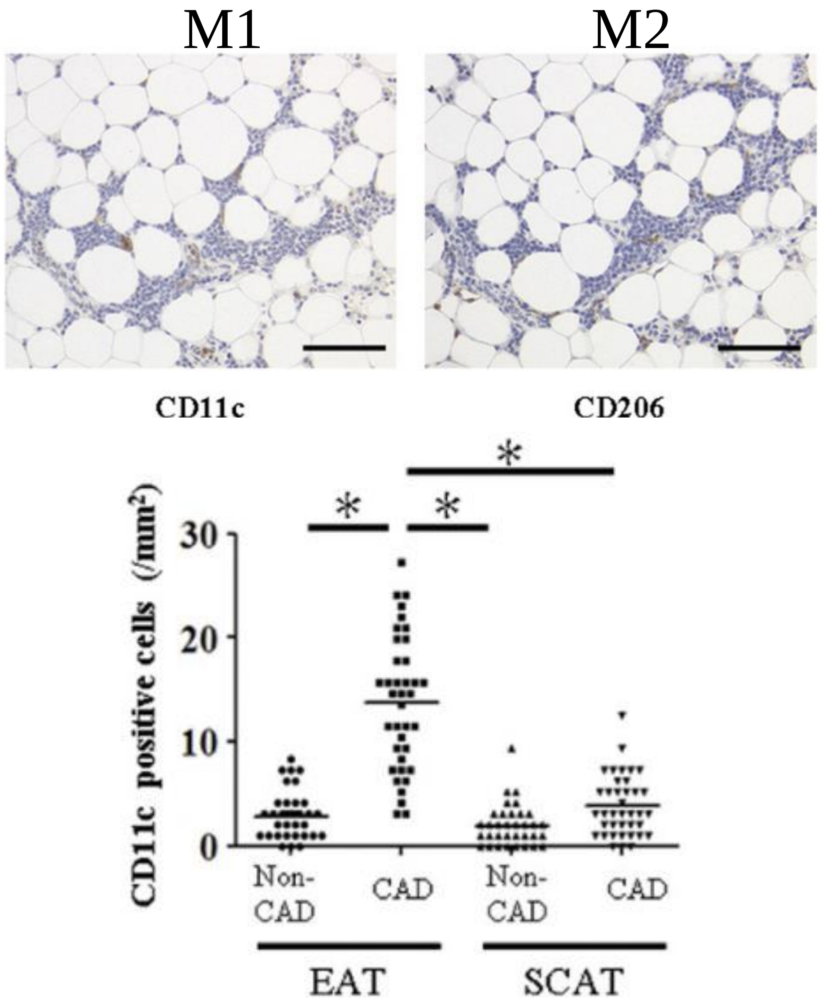
Epicardial adipose tissue and CAD



S. Eroglu, Nutrition Metabolism & Cardiovascular Diseases 2009

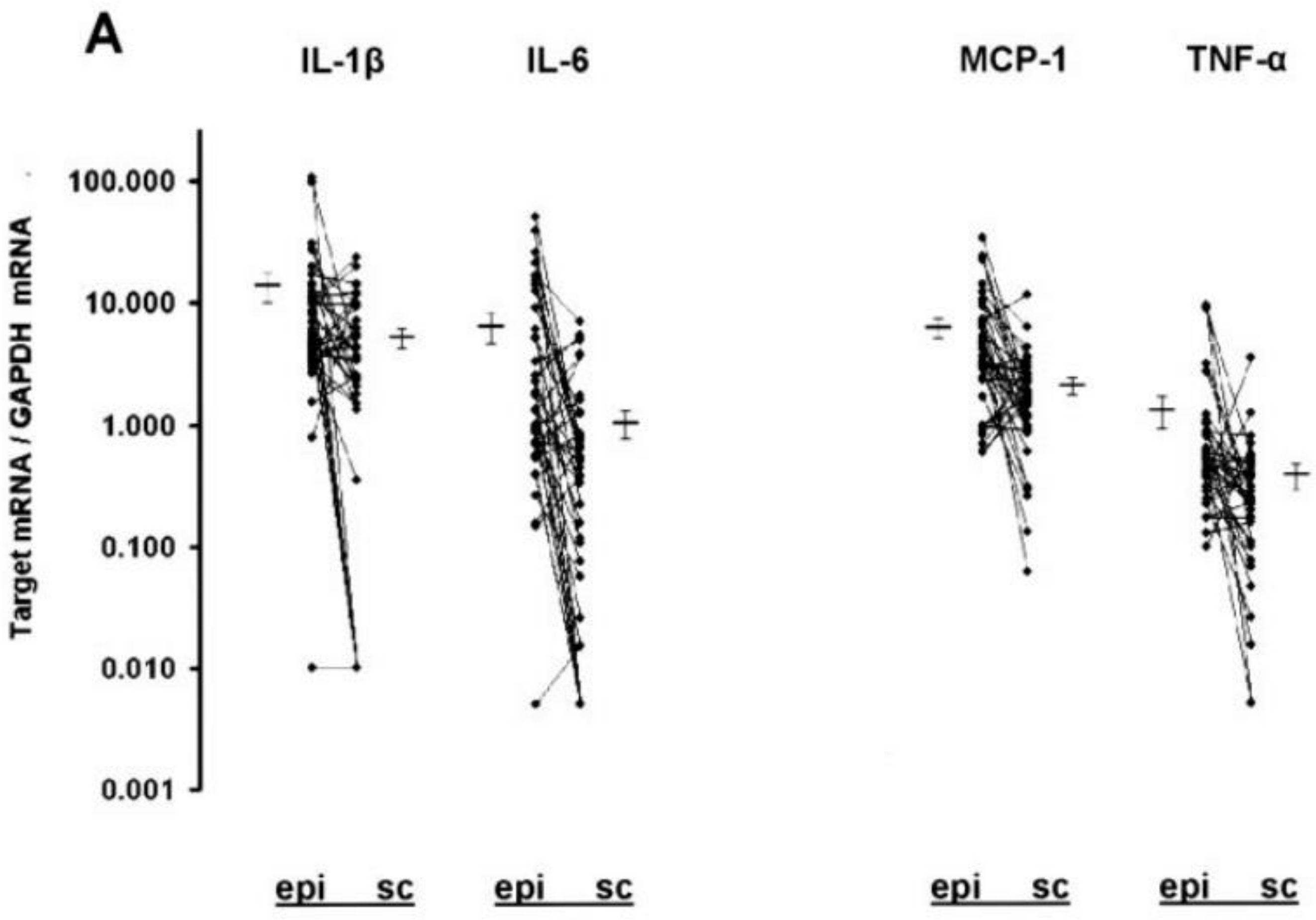
Epicardial adipose tissue and CAD

- In presenza di CAD aumenta l'infiltrazione macrofagica
- Polarizzazzione dei macrofagi M1/M2



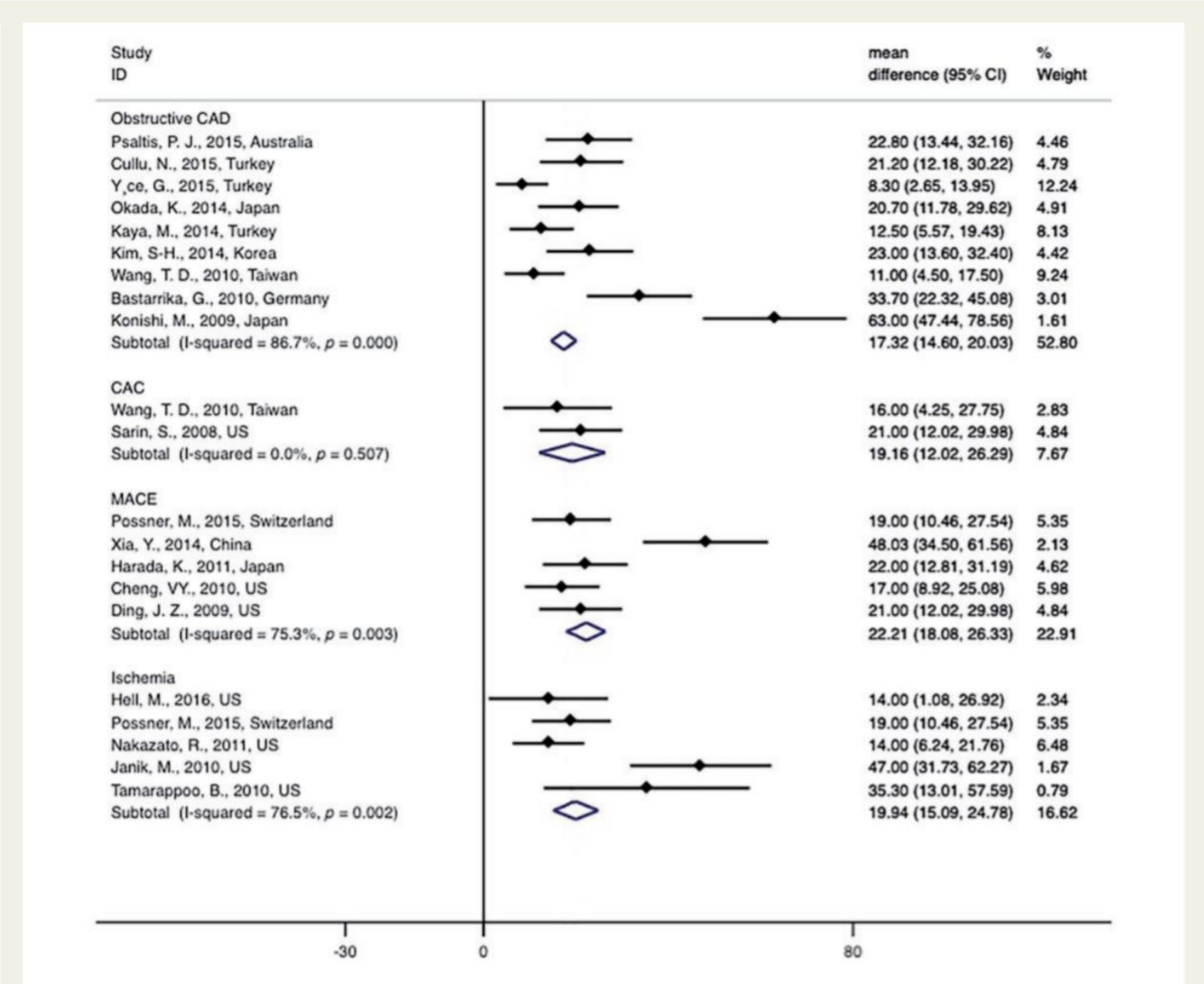
Hirata, JACC 2011

EAT is a source of inflammatory mediators in CAD pts



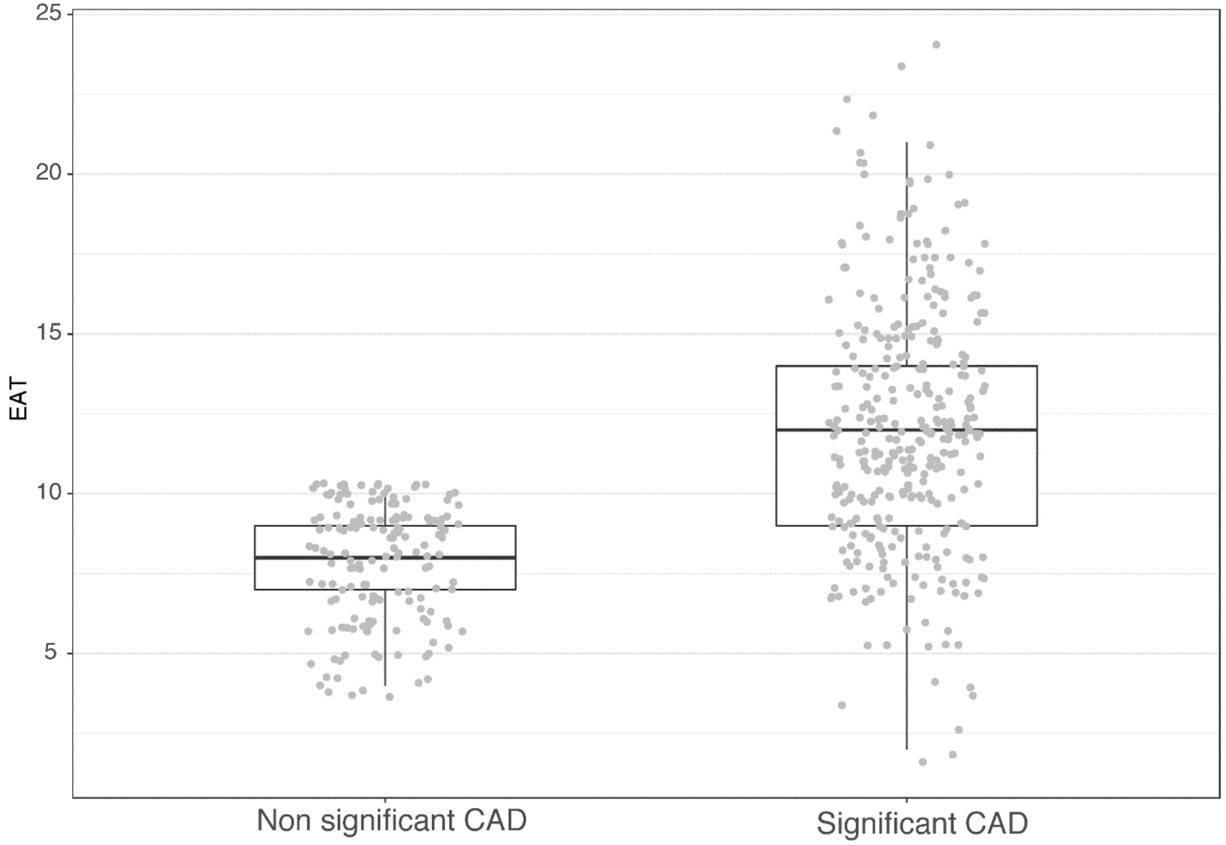
Mazurek T et al. Circulation. 2003

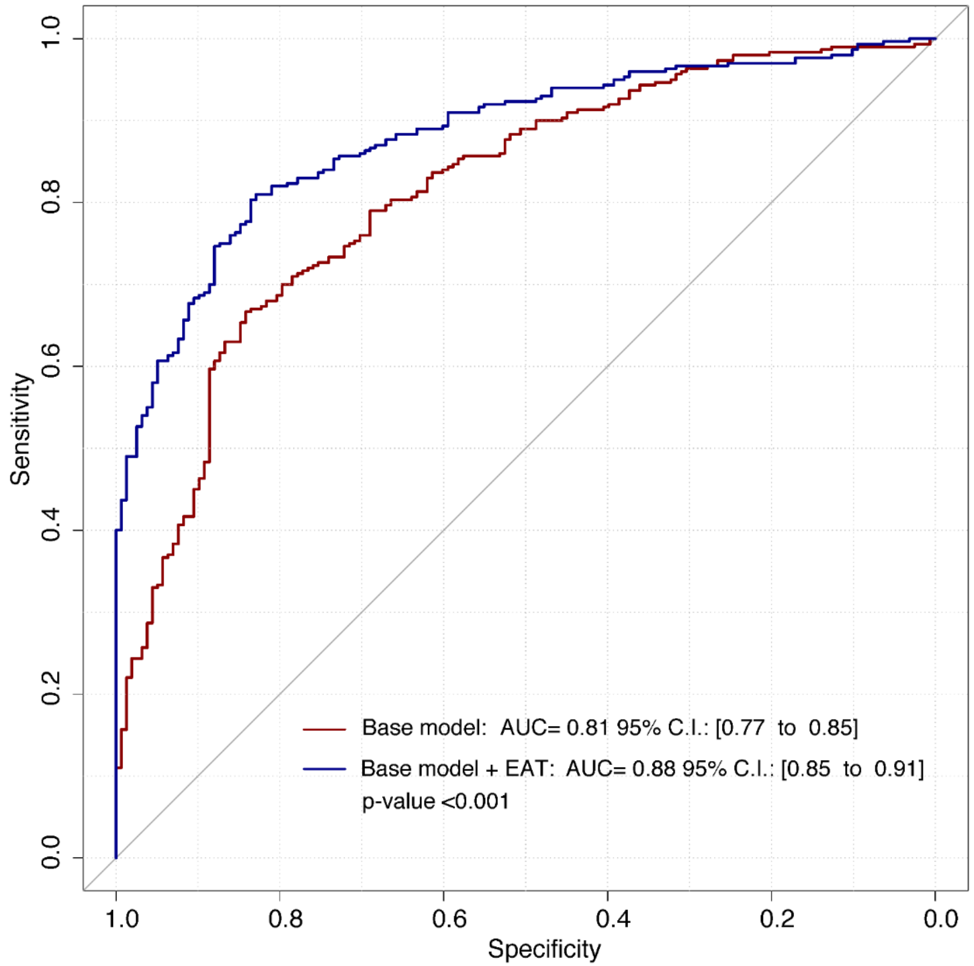
Association of EAT volume with CAD by outcome subgroups



Mancio J et al. Eur Heart J 2018

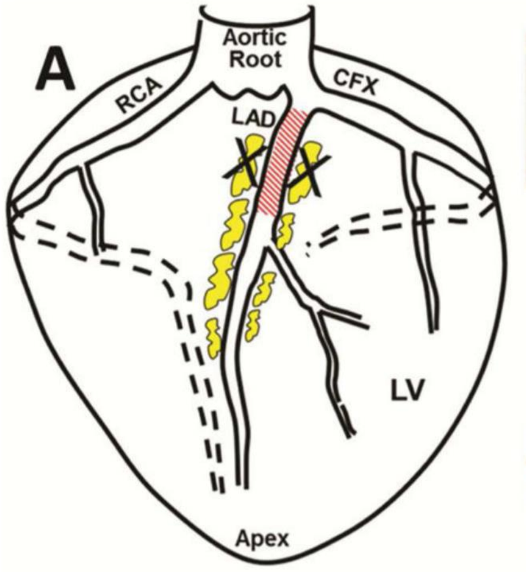
Echo-EAT thickness predicts CAD over common risk factors

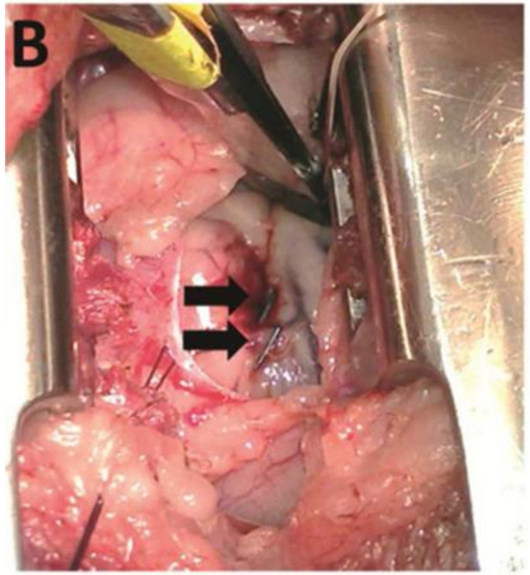




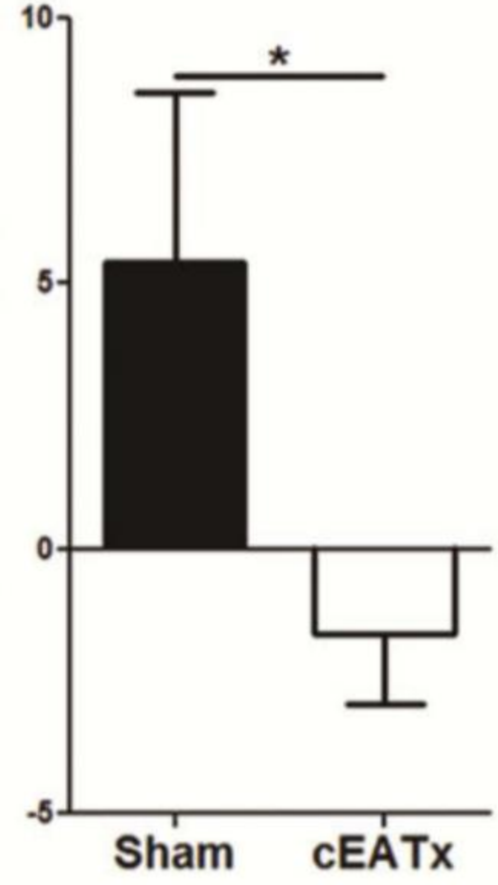
Parisi V et al. Unpublished data

Epicardial Adipose Tissue Removal Arrests Coronary Atherogenesis

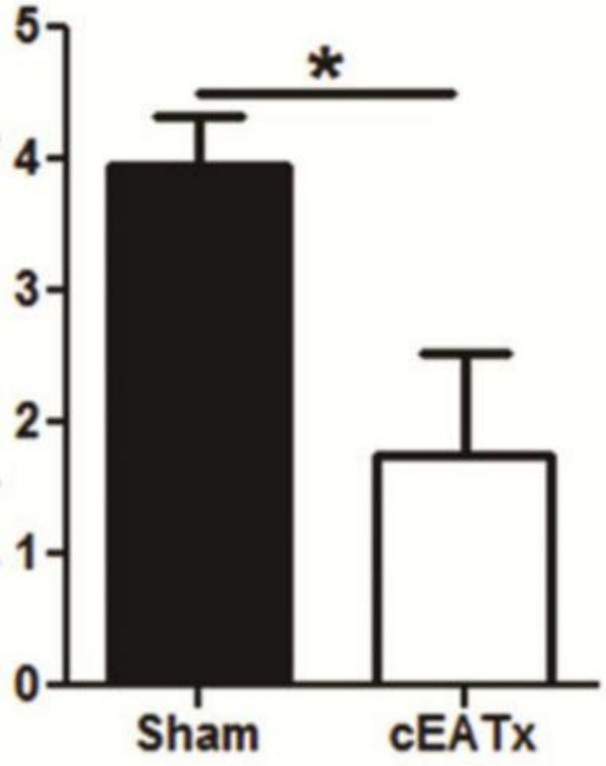




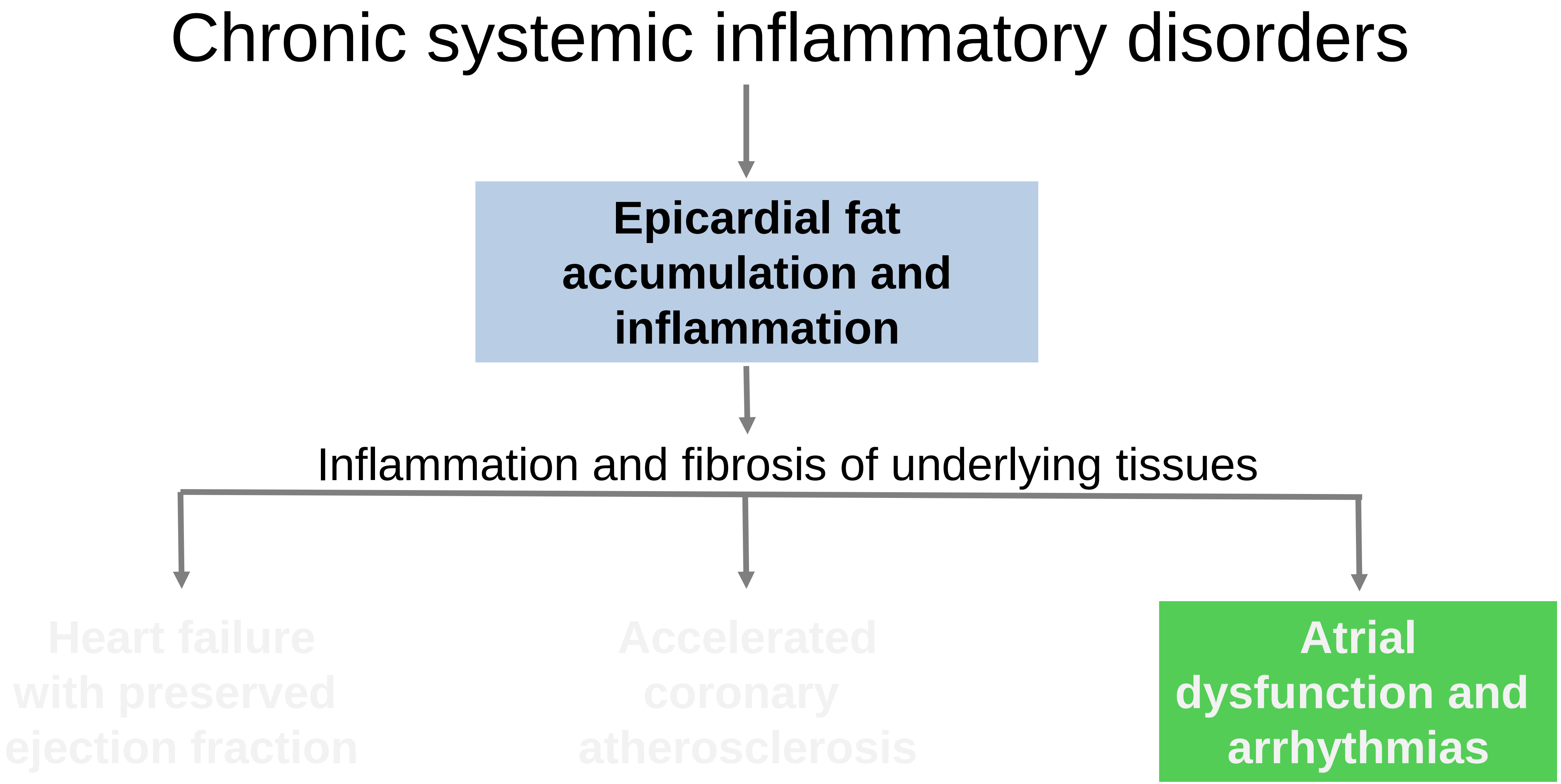
Δ% stenosis



Intimal cells proliferation



McKenney-Drake ML et al. Ann Thorac Surg 2017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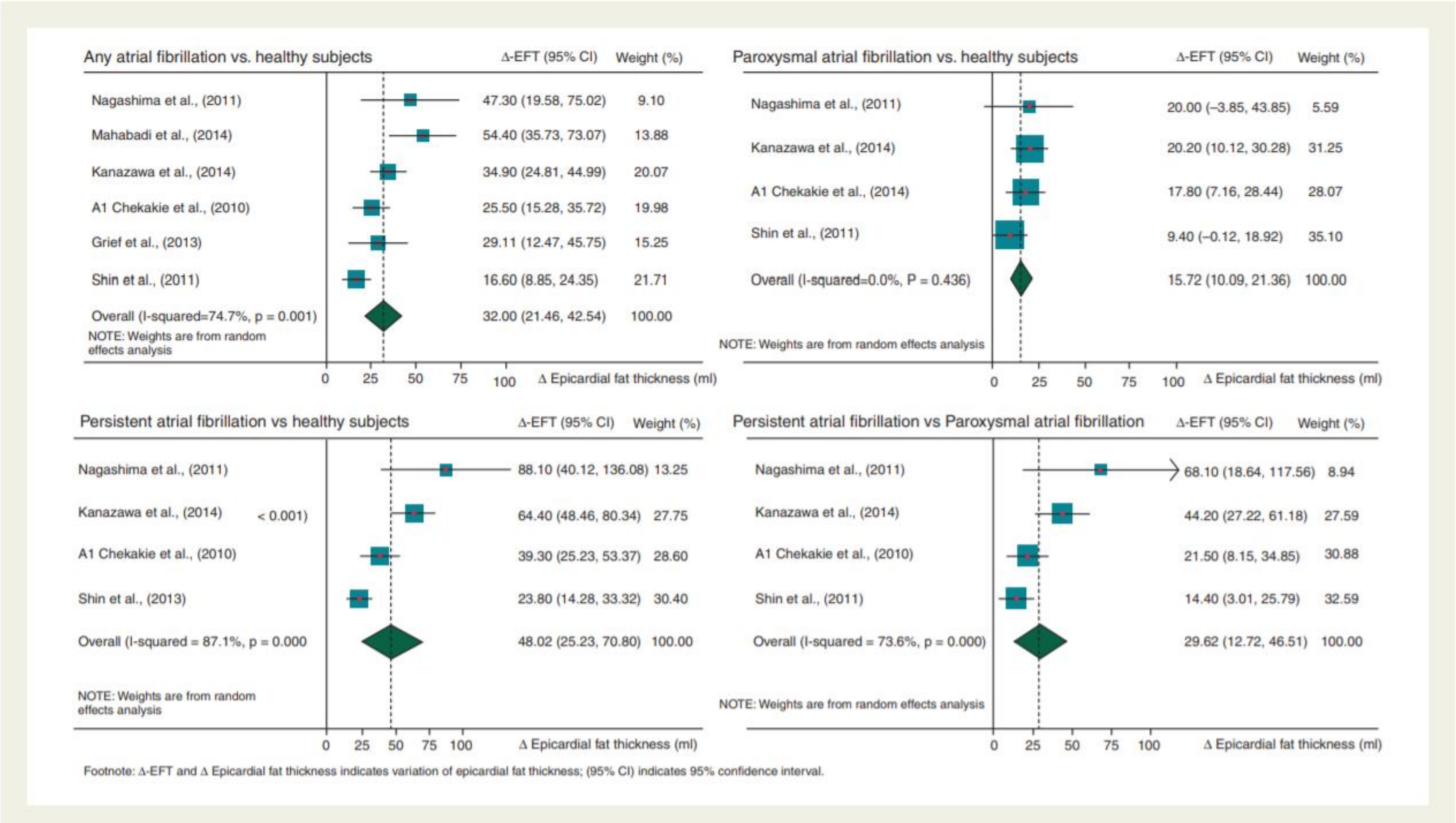
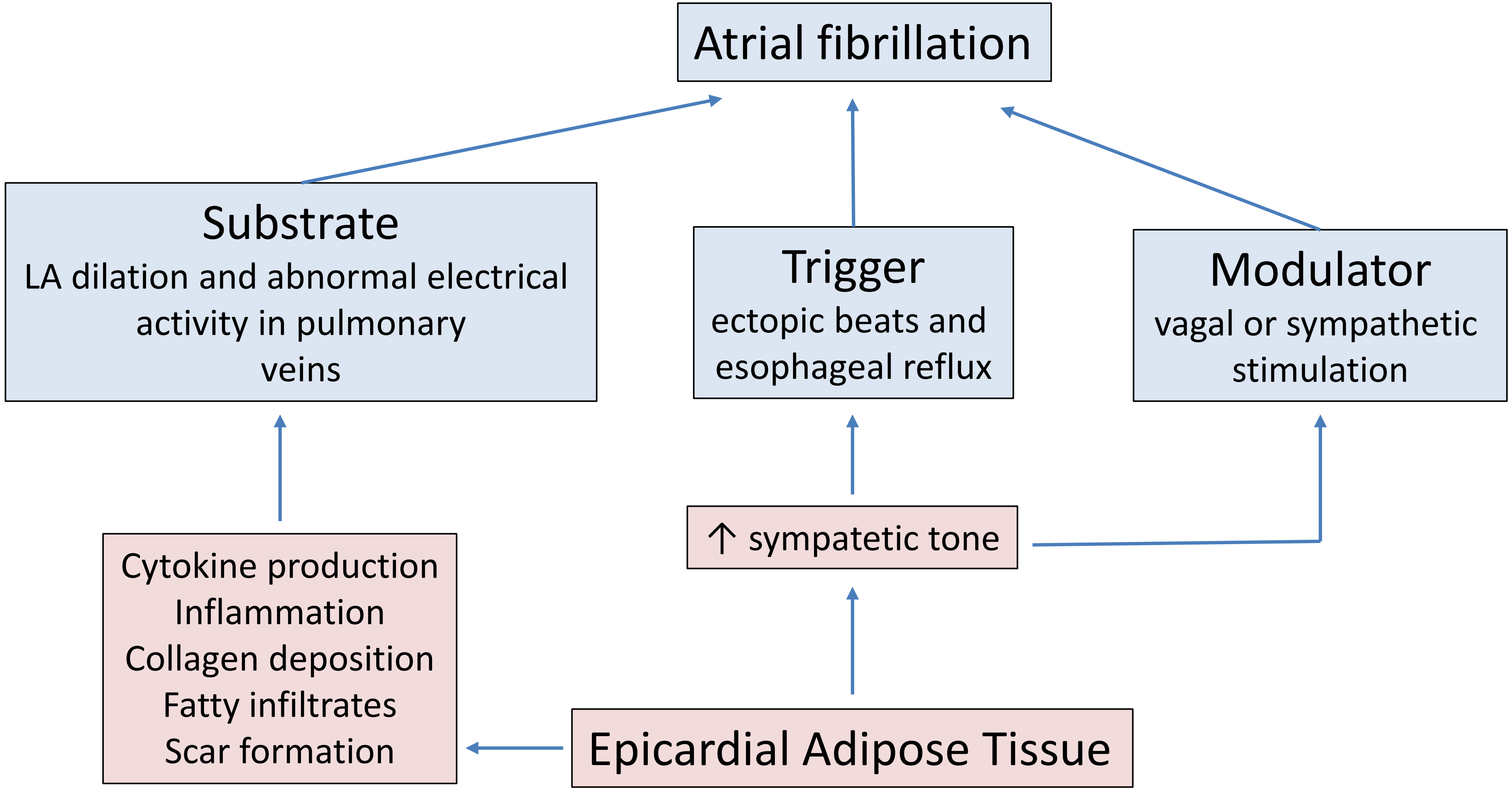
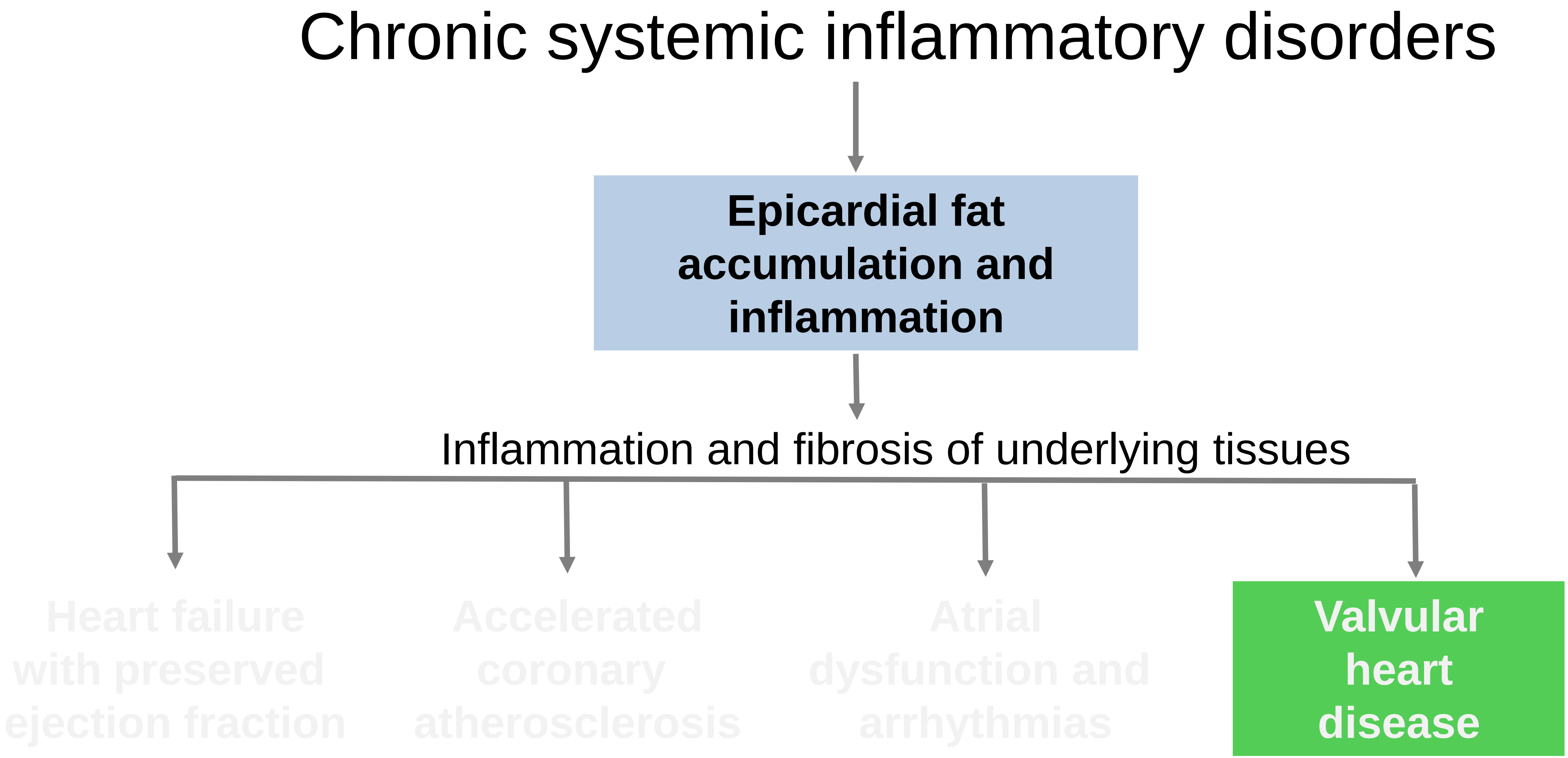
Type of atrial fibrillation and epicardial fat association



Gaeta M et al. Europace 2017

Epicardial adipose tissue in the pathogenesis of atrial fibrillation

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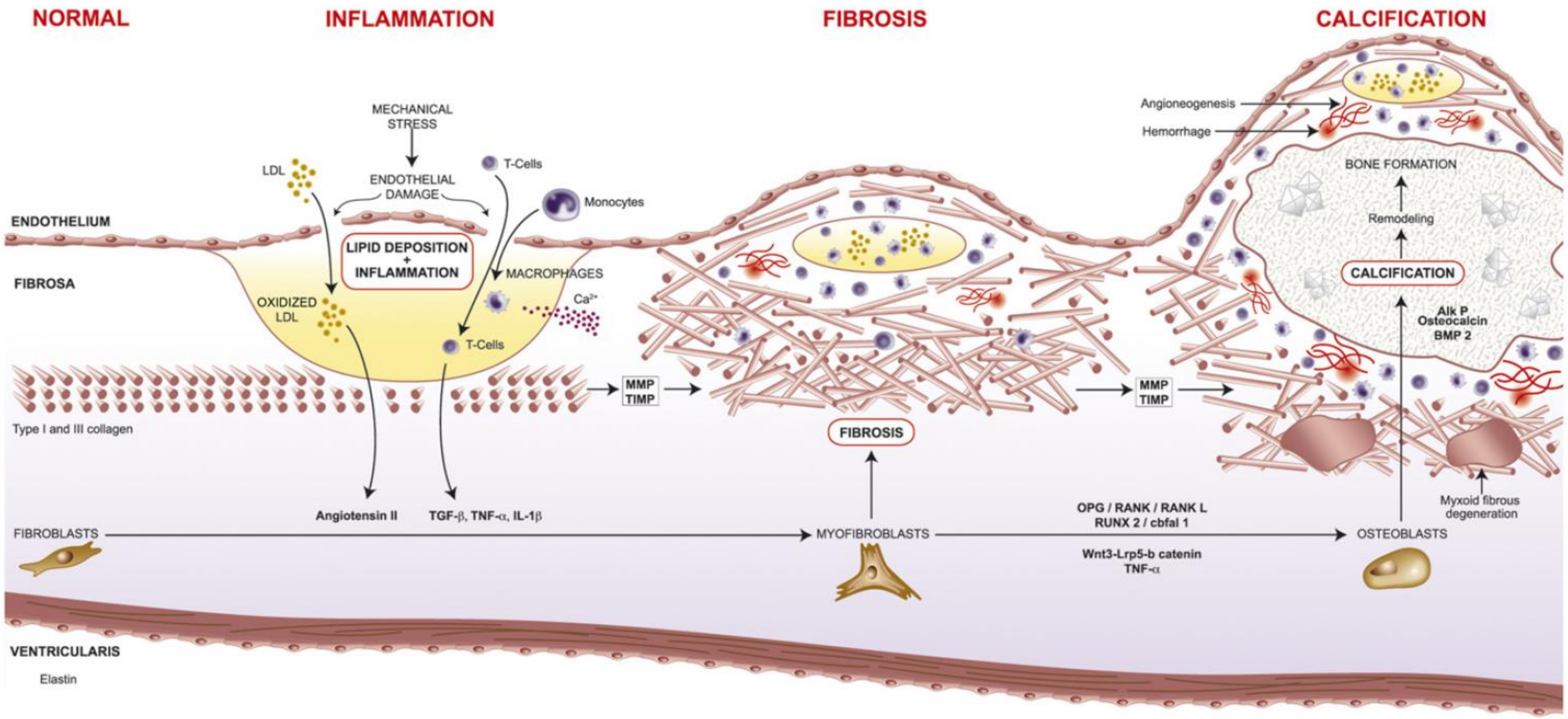
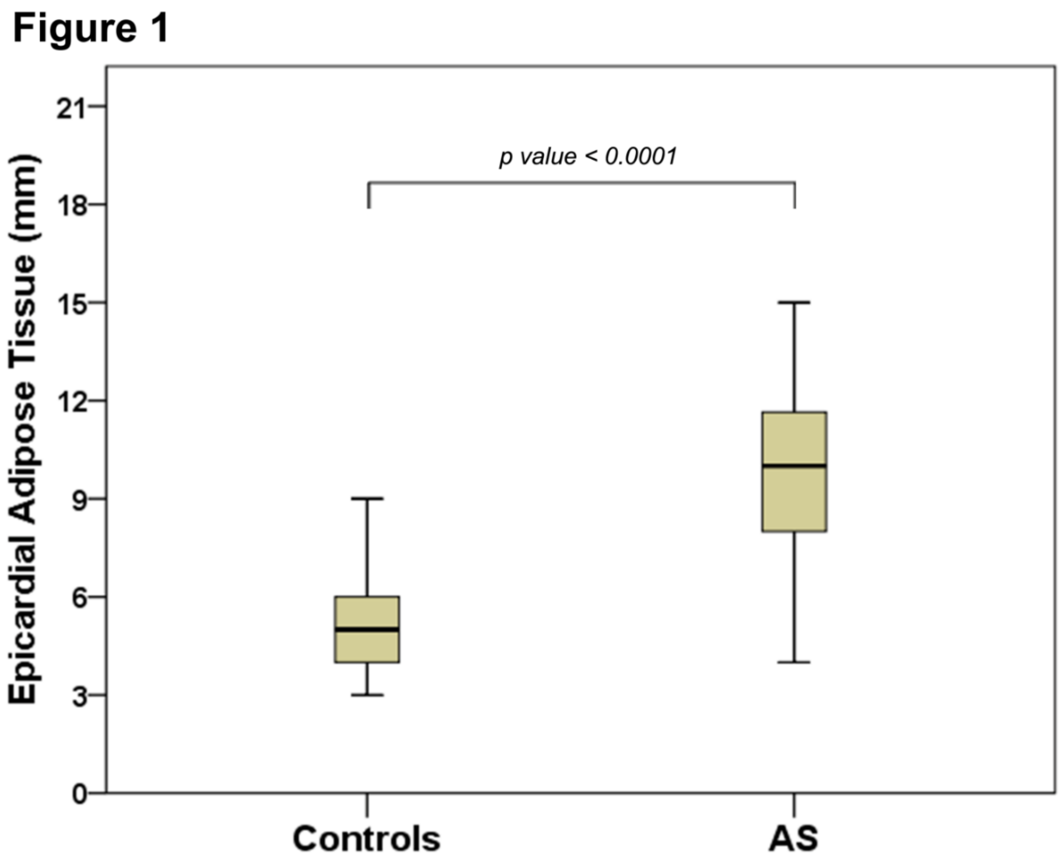
Valvular heart disease

Inflammation and Aortic Stenosis



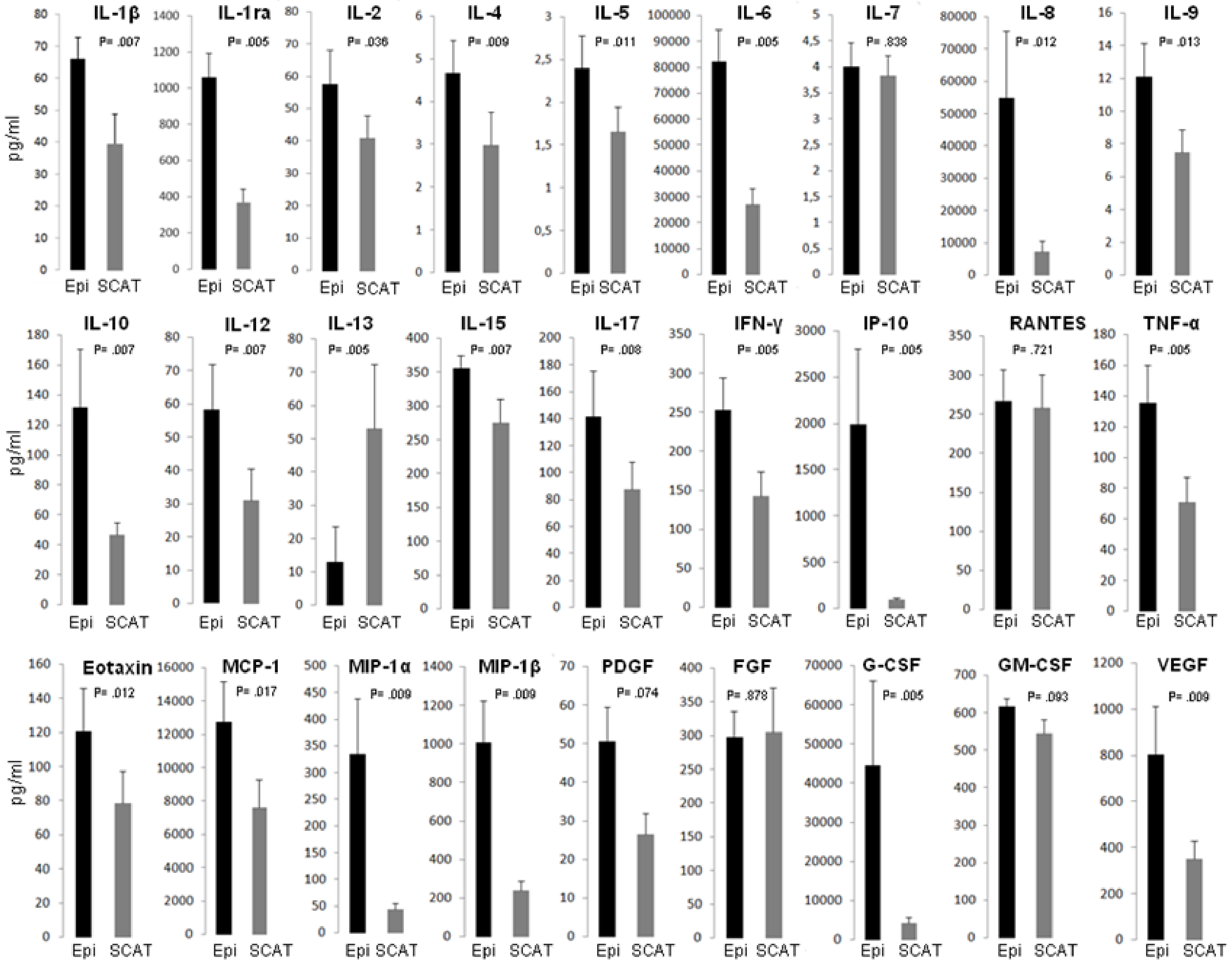
Dweck MR, JACC 2012

Epicardial adipose tissue is increased in pts with AS



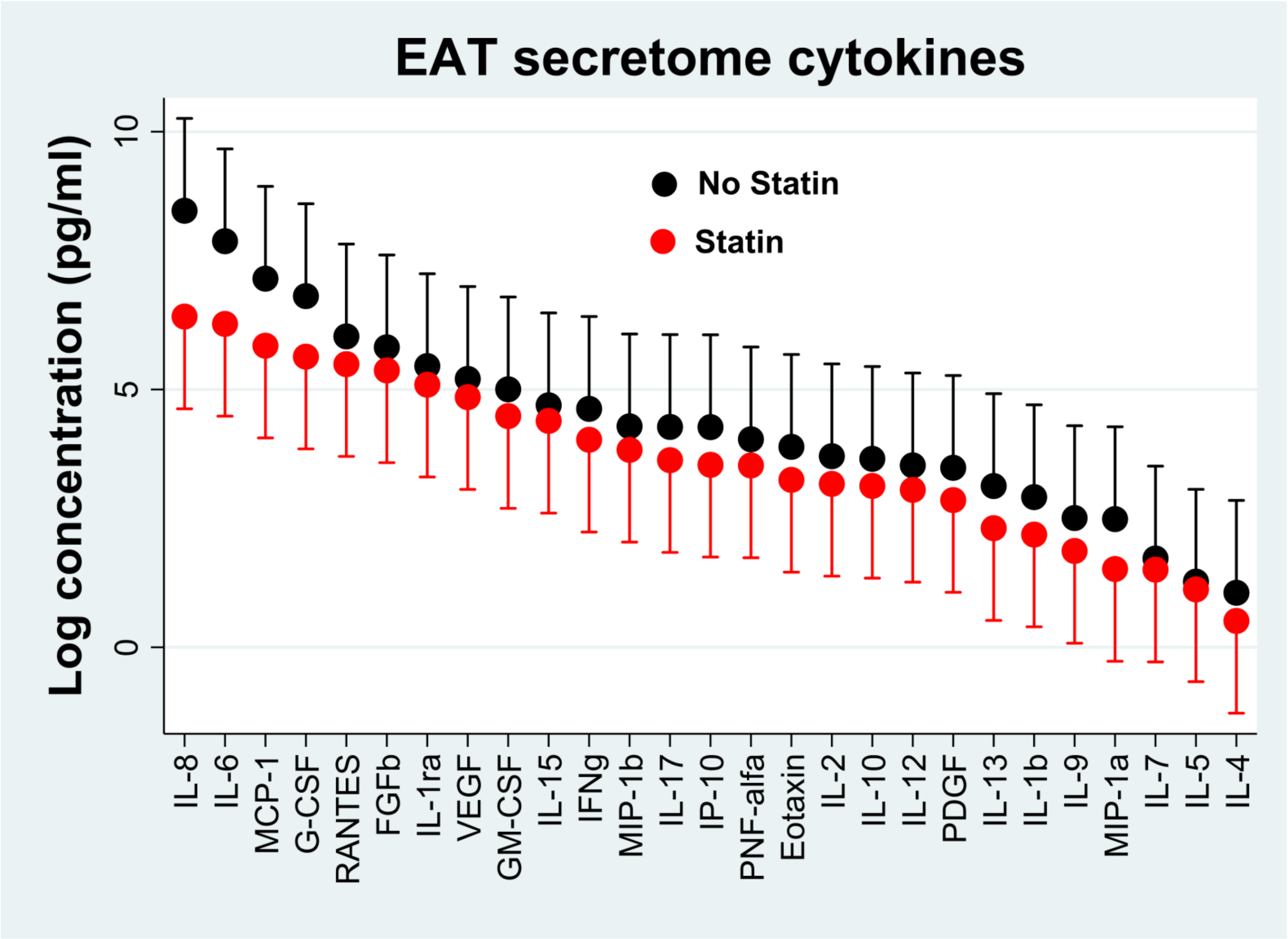
Parisi V et al, Int J Cardiol 2015

Epicardial adipose tissue shows an exalted inflammatory profile in pts with AS



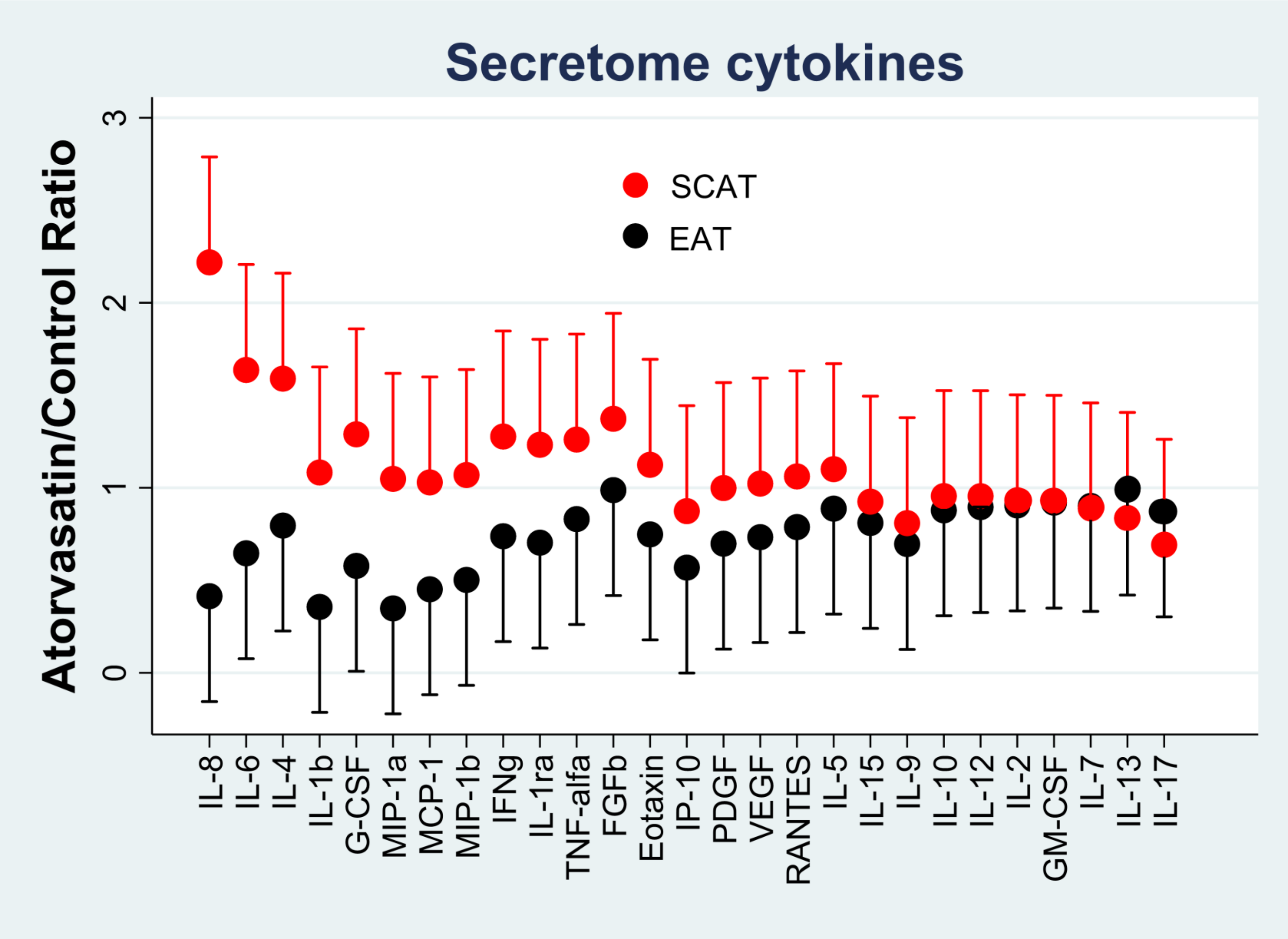
Parisi V et al, Int J Cardiol 2015

In vivo effects of statin therapy on EAT inflammatory profile



Parisi V. et al. Int J Cardiol 2018

In vitro effects of statin therapy on EAT inflammatory profile



Parisi V. et al. Int J Cardiol 2018

CONCLUSIONS

- The role of cardiac visceral fat in the pathogenesis of age-related cardiovascular diseases represents an hot topic of geriatric cardiology

- Age-related chronic low grade infiammation leads to the accumulation and inflammation of epicardial adipose tissue, which may have important implications for the pathogenesis of HFpEF coronary atherosclerosis, atrial tachyarrythmias, and valvular heart disease

- epicardial adipose tissue may be an important target for therapeutic interventions, since drugs that modify the quantity and biology of epicardial adipose tissue often exert parallel effects to influence the risk of several cardiovascular disorders, including heart failure