27ème CONGRÈS DU CNCH
Présentiel et digital

Symposium Alliance BOEHRINGER / LILLY - Insuffisance cardiaque chez le patient DT2 : Dépister, traiter et prévenir

# DÉPISTER L'INSUFFISANCE CARDIAQUE: QUELLES EXPLORATIONS POUR QUELS PATIENTS ?



**Berthelot Emmanuelle**
PH Hopital Bicêtre

AP-HP. Université Paris-Saclay

SOCIÉTÉ FRANÇAISE DE CARDIOLOGIE
GICC Groupe Insuffisance Cardiaque & Cardiomyopathies

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I currently have, or have had over the last two years, an affiliation or financial interests or interests of any order with a company or I receive compensation or fees or research grants with a commercial company :

☑ I have the following potential disclosure to report

Novartis (Consultant- Expert)

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# Epidémiologie de l'Insuffisance cardiaque en France


Santé publique France 2019


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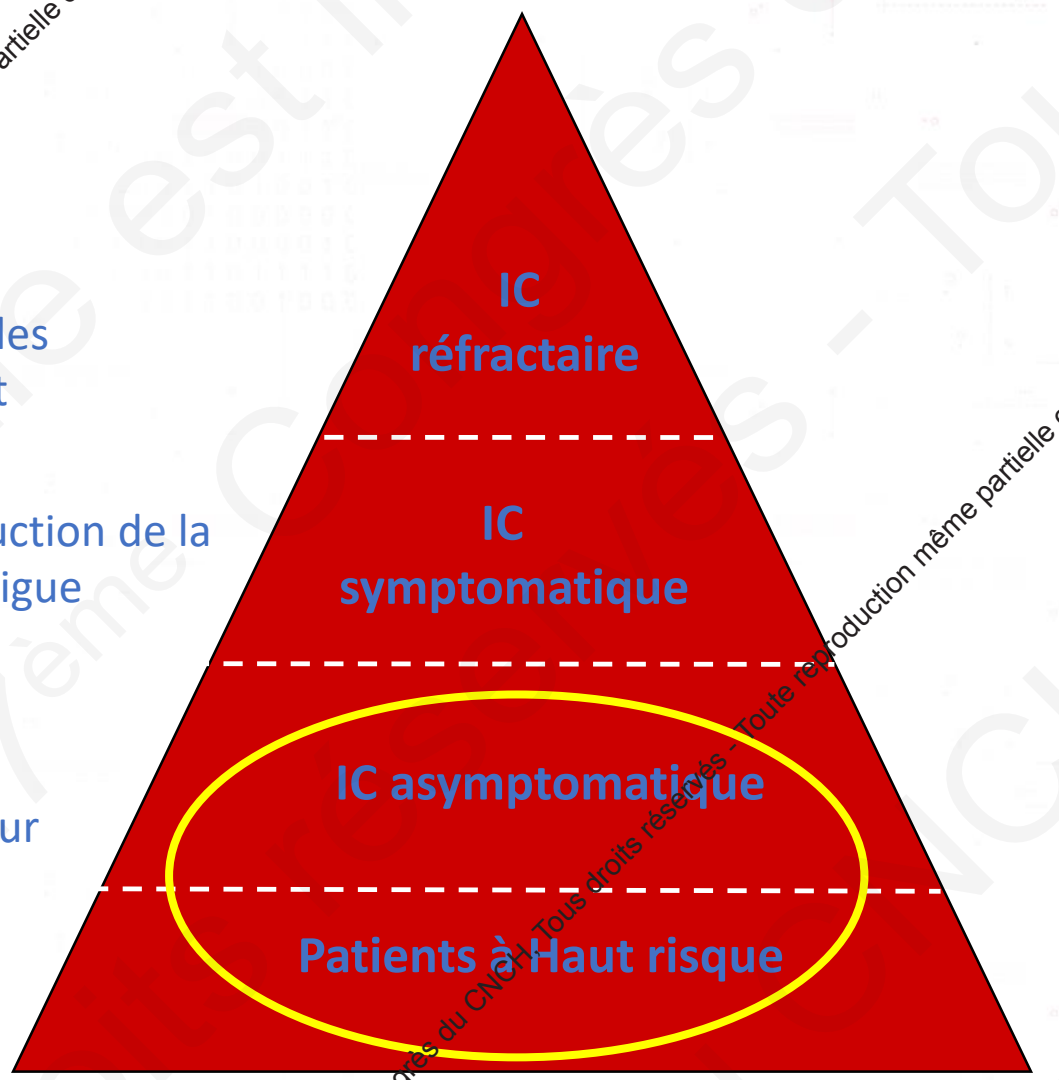
# Stades

**IC terminale** persistance des symptômes malgré le traitement

**IC symptomatique** réduction de la capacité d'exercice, dyspnée, fatigue

**IC asymptomatique**
détérioration structurelle du cœur

**Facteurs de risque d'IC** HTA, maladie coronaire, diabète, antécédent familial, dyslipidémie, tabac



# Retard au diagnostic : enquête ICPS2

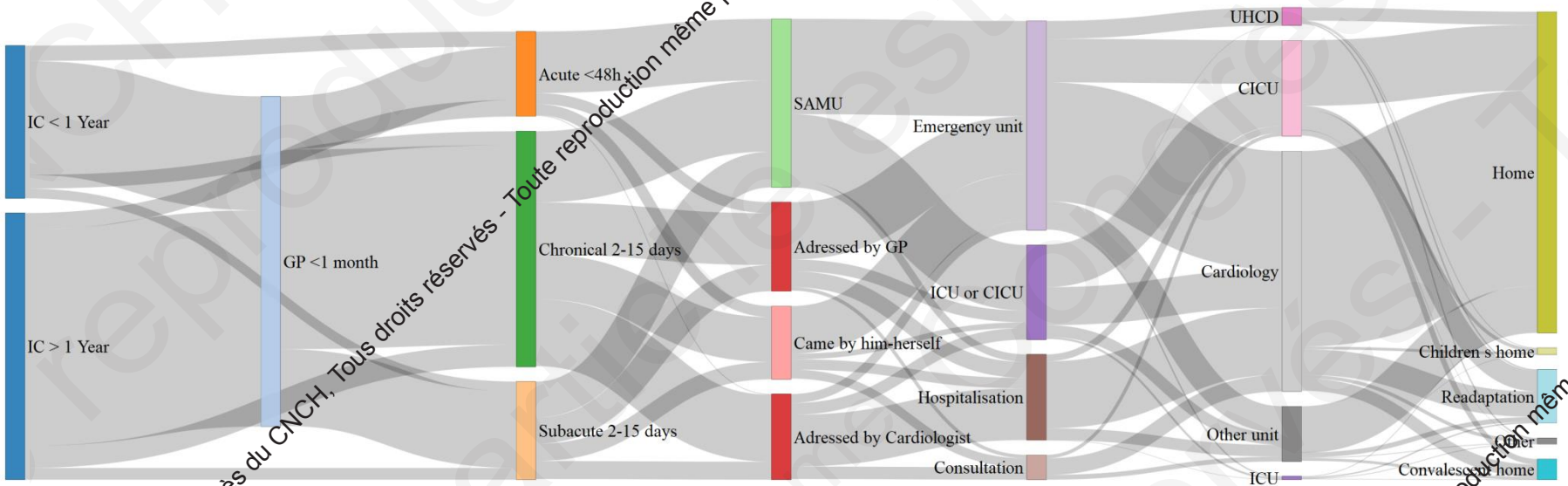



**Figure : Acute Heart Failure HealthCare PathWay**

- 793 patients were included,
- 59.0% were men,
- 45.6% identified heart failure (HF) as the main cause of hospitalization; 36.0% were unaware of their HF.
- Mean age was 72.9 ± 14.5 years.
- The symptoms occurring the most before hospitalization were dyspnea (64.7%) and lower limb edema (27.7%).
- Prior to hospitalization, 47% had already experienced symptoms for 15 days; 32% of them for 2 months. Referral to hospital was made by the emergency medical assistance service (SAMU, 41.6%), a general practitioner (GP, 22.3%), a cardiologist (19.5%), or the patient (16.6%).



Beauvais F, et al. ICPS2 survey. Clin Cardiol. 2021 Aug;44(8):1144-1150.

# Un dépistage chez certains patients ?

**Table 5 Screening tool for heart failure**

| | Points |
|---|---|
| Age >75 years | 1 |
| A history of ischaemic heart disease* | 1 |
| History of TIA or stroke | 1 |
| Dyspnoea or fatigue | 2 |
| Reported ankle oedema or nocturia | 1 |
| Claudicational complaints | 1 |
| Pulmonary crepitations, elevated jugular venous pressure, peripheral oedema and/or hepatomegaly | 1 |

C-statistic =0.82 (95% confidence interval 0.79–0.86).



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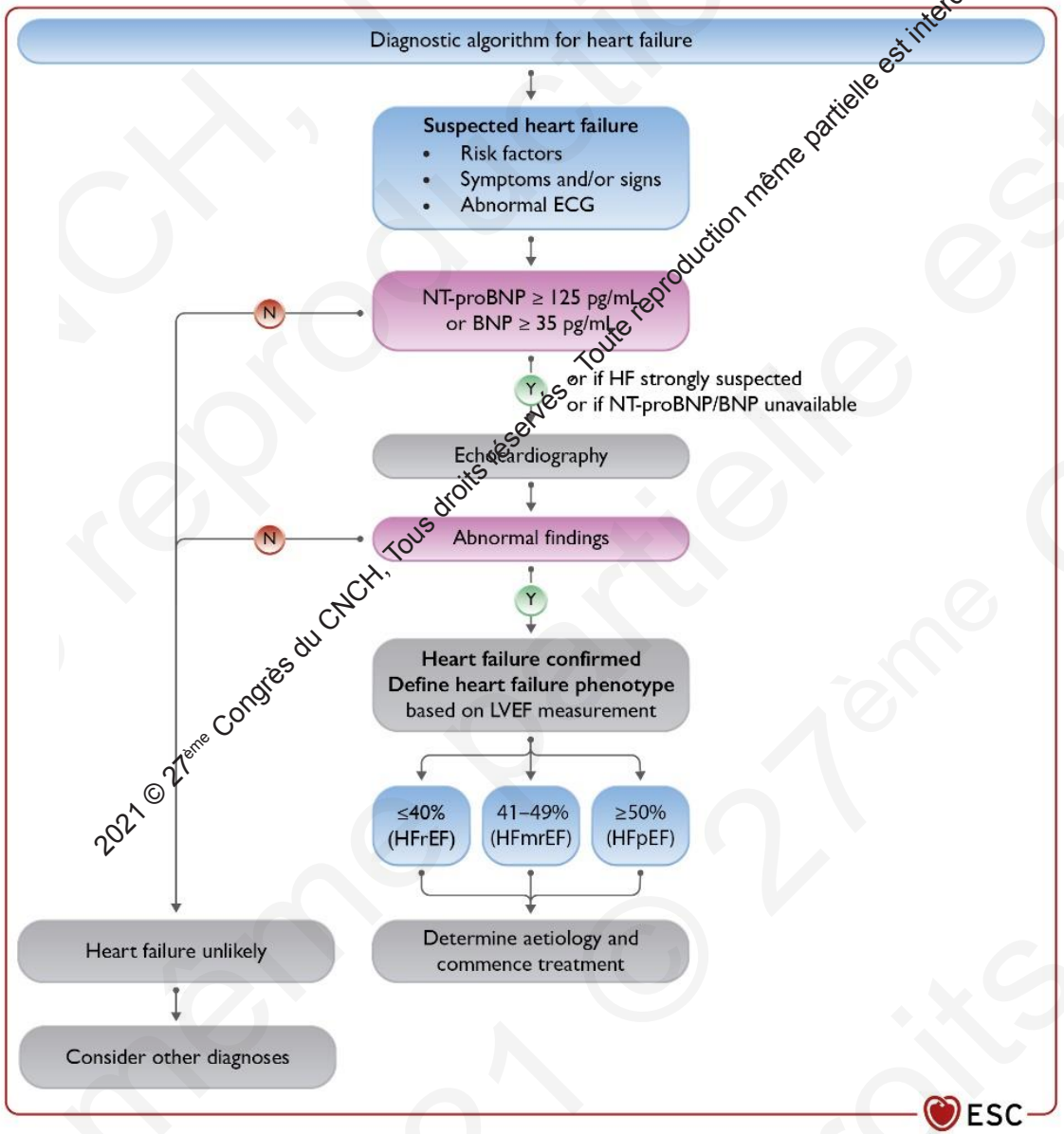
Boonman-de Winter, Efficiently screening heart failure in patients with type 2 diabetes. Eur J Heart Fail 2015, 17: 187-195

# Diagnostiquer l' IC

## The diagnostic algorithm for heart failure




ECG = electrocardiogram; HFmrEF = heart failure with mildly reduced ejection fraction;
HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction; LVEF = left ventricular ejection fraction; NT-proBNP = N-terminal pro-B type natriuretic peptide.
The abnormal echocardiographic findings are described in more detail in the respective sections onHFrEF (section 5), HFmrEF (section 7), and HFpEF (section 8).



2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure (European Heart Journal 2021 – doi:10.1093/eurheartj/ehab368)

# Critères diagnostiques (Framingham)

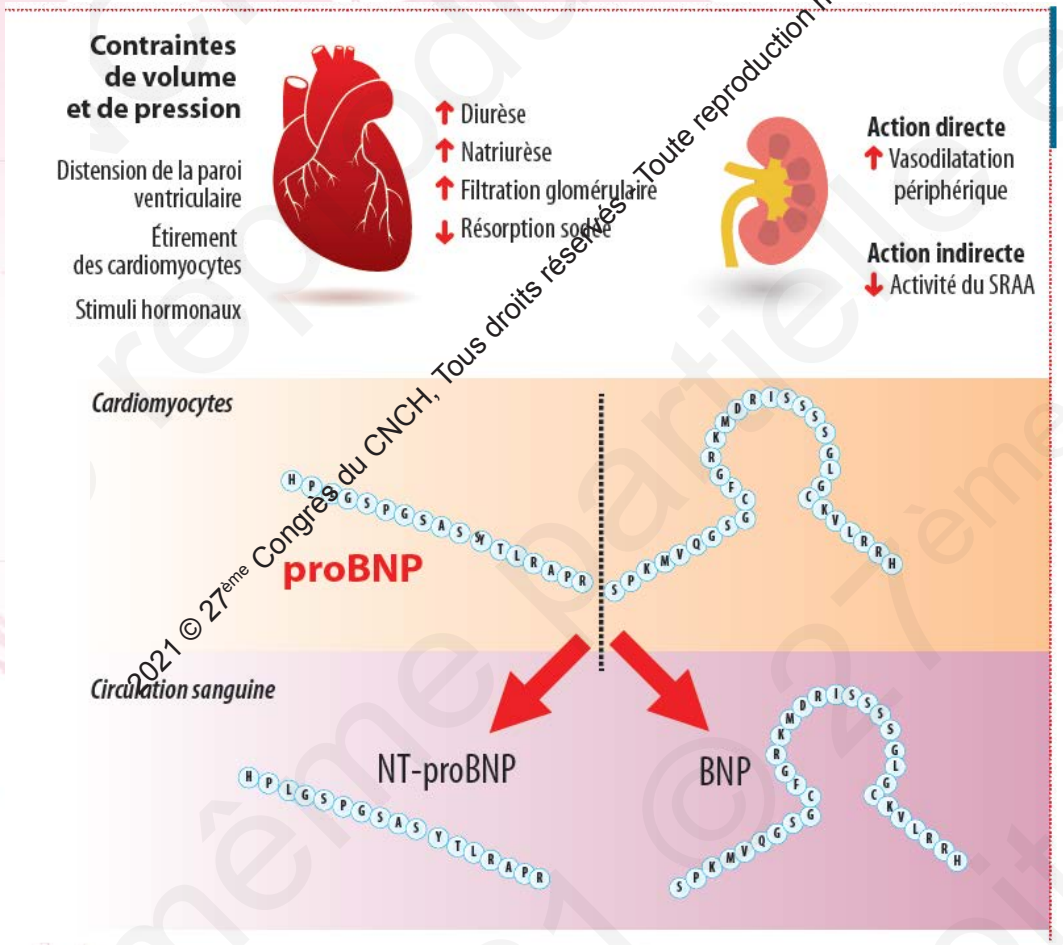
## EPOF

**Table 4.1** Symptoms and signs typical of heart failure

| Symptoms | Signs |
|---|---|
| **Typical** | **More specific** |
| Breathlessness<br>Orthopnoea<br>Paroxysmal nocturnal dyspnoea<br>Reduced exercise tolerance<br>Fatigue, tiredness, increased time to recover after exercise<br>Ankle swelling | Elevated jugular venous pressure<br>Hepatojugular reflux<br>Third heart sound (gallop rhythm)<br>Laterally displaced apical impulse |
| **Less typical** | **Less specific** |
| Nocturnal cough<br>Wheezing<br>Bloated feeling<br>Loss of appetite<br>Confusion (especially in the elderly)<br>Depression<br>Palpitations<br>Dizziness<br>Syncope<br>Bendopnea[53] | Weight gain (>2 kg/week)<br>Weight loss (in advanced HF)<br>Tissue wasting (cachexia)<br>Cardiac murmur<br>Peripheral oedema (ankle, sacral, scrotal)<br>Pulmonary crepitations<br>Reduced air entry and dullness to percussion at lung bases (pleural effusion)<br>Tachycardia<br>Irregular pulse<br>Tachypnoea<br>Cheyne Stokes respiration<br>Hepatomegaly<br>Ascites<br>Cold extremities<br>Oliguria<br>Narrow pulse pressure |


JAMA 2003 ; 289 : 194-202

# Particularités du NTproBNP : un biomarqueur




- Sensible et assez spécifique
- Kit de dosage standardisé (comparable d'un labo à l'autre)
- NT-proBNP plus stable que BNP (ne se dégrade qu'après 4 j)
- Disponible
- Accessible
- Peu onéreux
- Peut être répété

# Causes of heart failure, common modes of presentation and specific investigations (1)

| Cause | Examples of presentations | Specific investigations |
|---|---|---|
| CAD | Myocardial infarction<br>Angina or "angina-equivalent"<br>Arrhythmias | Invasive coronary angiography<br>CT-coronary angiogram<br>Imaging stress tests (echo, nuclear, CMR) |
| Hypertension | Heart failure with preserved systolic function<br>Malignant hypertension/acute pulmonary oedema | 24 h ambulatory BP<br>Plasma metanephrines, renal artery imaging<br>Renin and aldosterone |
| Valve disease | Primary valve disease e.g. aortic stenosis<br>Secondary valve disease e.g. functional regurgitation<br>Congenital valve disease | Echo – transoesophageal/stress |
| Arrhythmias | Atrial tachyarrhythmias<br>Ventricular arrhythmias | Ambulatory ECG recording<br>Electrophysiology study, if indicated |
| CMPs | All<br>Dilated<br>Hypertrophic<br>Restrictive<br>ARVC<br>Peripartum<br>Takotsubo syndrome<br>Toxins: alcohol, cocaine, iron, copper | CMR, genetic testing<br><br><br>Right and left heart catheterization<br><br><br>CMR, angiography<br>Trace elements, toxicology, LFTs, GGT |

ARVC = arrhythmogenic right ventricular cardiomyopathy; BP = blood pressure; CAD= coronary artery disease; CMP = cardiomyopathy; CMR= cardiac magnetic resonance; ECG = electrocardiogram; GGT= gamma-glutamyl transferase; LFT = liver function test.





2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure
(European Heart Journal 2021 – doi:10.1093/eurheartj/ehab368)

# HFpEF

| *HFpEF* | |
|---|---|
| Screening for, and treatment of, aetiologies, and CV and non-CV comorbidities are recommended in patients with HFpEF (see relevant sections of this document). | I |

Rechercher l'amylose cardiaque et la traiter

| Recommendations | Class[a] | Level[b] |
|---|---|---|
| Tafamidis is recommended in patients with genetic testing proven hereditary hTTR-CMP and NYHA class I or II symptoms to reduce symptoms, CV hospitalization and mortality.[979] | I | B |
| Tafamidis is recommended in patients with wtTTR-CA and NYHA class I or II symptoms to reduce symptoms, CV hospitalization and mortality.[979] | I | B |

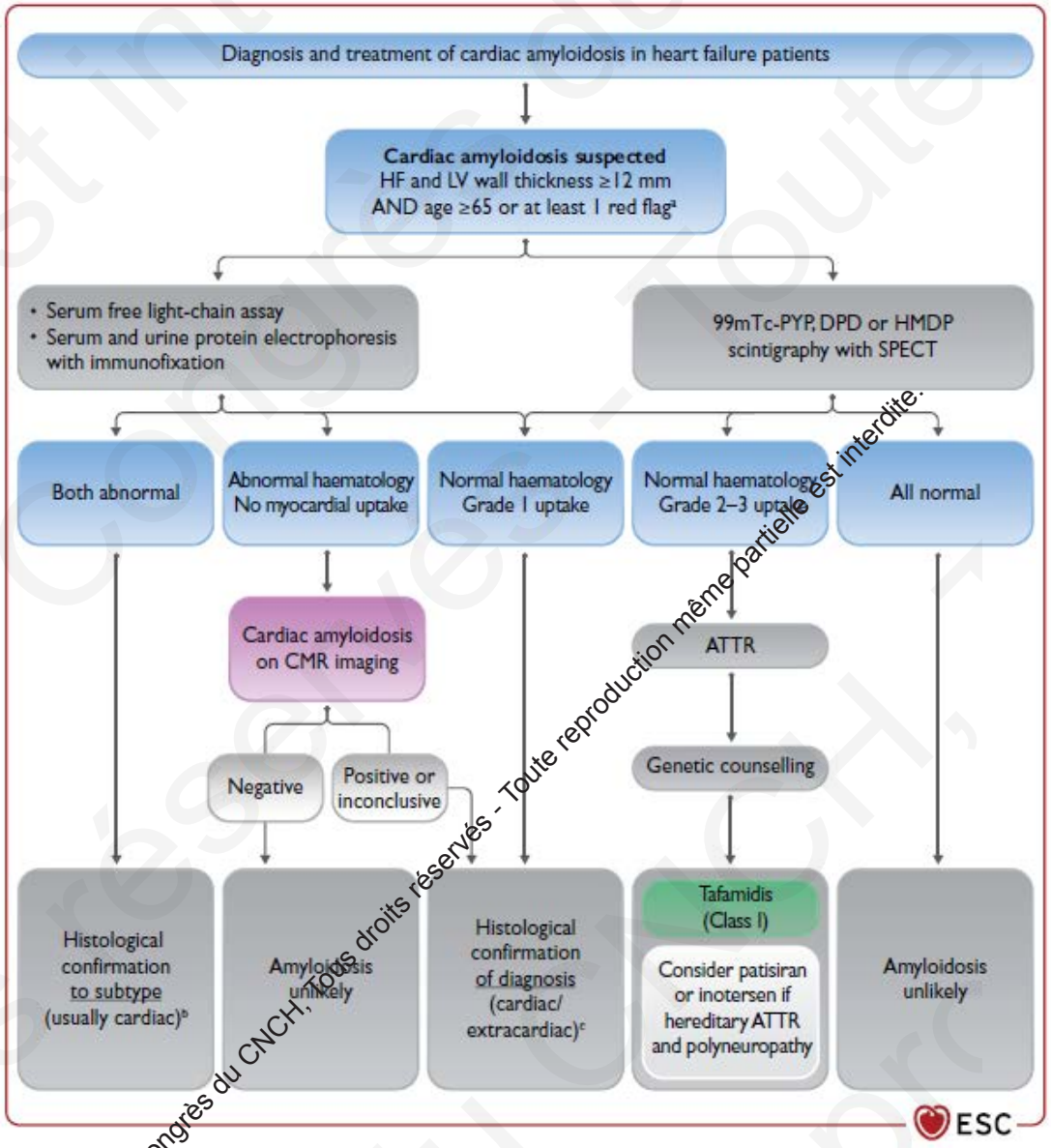
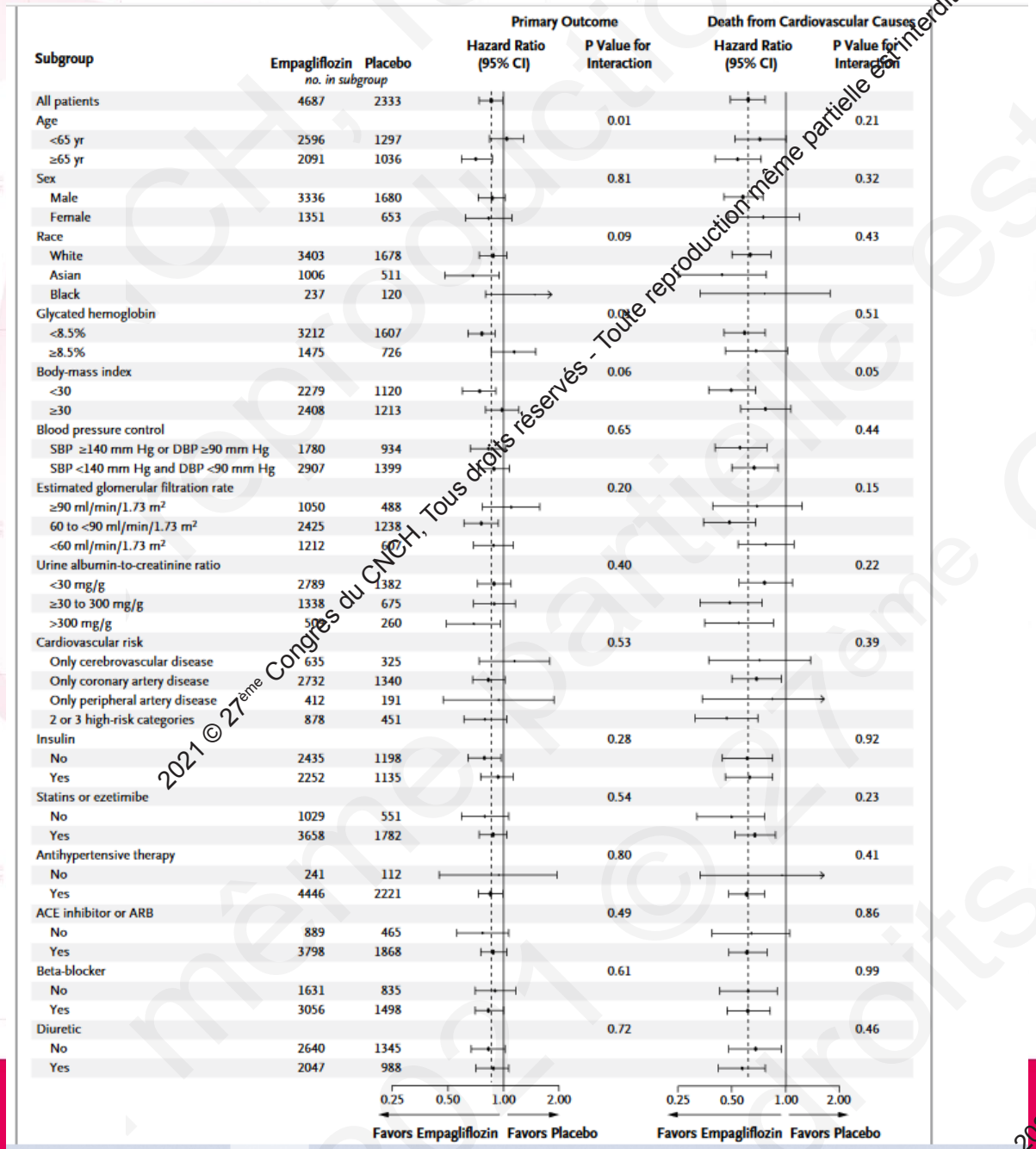



**Figure 21** Diagnosis and treatment of cardiac amyloidosis in heart failure patients. Based on.[973] ATTR = transthyretin amyloidosis; CMR = cardiac magnetic resonance; DPD = 3,3-diphosphono1,2-propanodicarboxylic acid; HF = heart failure; HMDP = hydroxymethylene diphosphonate; LV = left ventricular; SPECT = single-photon emission computed tomography; 99mTc-PYP = technetium-labelled $^{99m}$Tc-pyrophosphate. [a]Red flags are listed in *Table 35*. [b]Generally requires endomyocardial biopsy for a diagnosis of the cardiac subtype. [c]Requires biopsy that may be cardiac or abdominal.






Prise en charge en Prévention primaire

Patients diabétiques de type 2
BMI < 45
DFG > 30 ml/min
Patients à « haut risque »,
HBA1C > 7%
ATCD de maladie cardiovasculaire

7028 patients randomisés Empagliflozin vs placebo

Suivi 4 ans



EMPA-REG OUTCOME
Zinman et al. NEJM 2015. 373;22

# Un traitement préventif chez le diabétique à haut risque ?

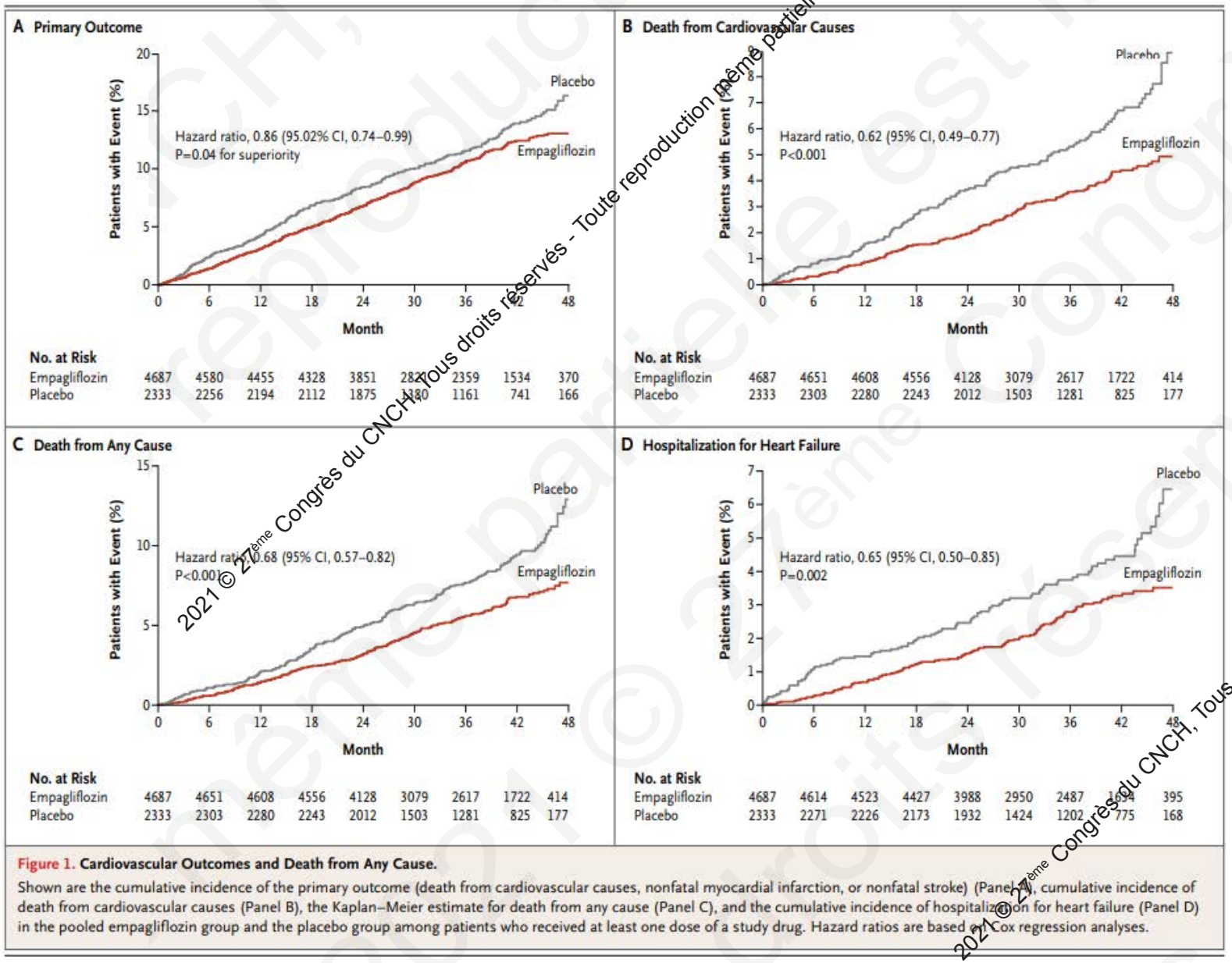



**Figure 1. Cardiovascular Outcomes and Death from Any Cause.**

Shown are the cumulative incidence of the primary outcome (death from cardiovascular causes, nonfatal myocardial infarction, or nonfatal stroke) (Panel A), cumulative incidence of death from cardiovascular causes (Panel B), the Kaplan–Meier estimate for death from any cause (Panel C), and the cumulative incidence of hospitalization for heart failure (Panel D) in the pooled empagliflozin group and the placebo group among patients who received at least one dose of a study drug. Hazard ratios are based on Cox regression analyses.

EMPA-REG OUTCOME
Zinman et al. NEJM 2015. 373;22

# Lower Risk of Heart Failure and Death in Patients Initiated on Sodium-Glucose Cotransporter-2 Inhibitors Versus Other Glucose-Lowering Drugs



Circulation

The CVD-REAL Study (Comparative E
of Sodium-Glucose Cotransporter-2 Inh

Mikhail Kosiborod, Matthew A. Cavender, Alex Z. Fu

Circulation

ORIGINAL RESEARCH ARTICLE

# Canagliflozin and Heart Failure in Type 2 Diabetes Mellitus

## Results From the CANVAS Program

**BACKGROUND:** Canagliflozin is a sodium glucose cotransporter 2 inhibitor that reduces the risk of cardiovascular events. We report the effects on heart failure (HF) and cardiovascular death overall, in those with and without a baseline history of HF, and in other participant subgroups.

**METHODS:** The CANVAS Program (Canagliflozin Cardiovascular Assessment Study) enrolled 10 142 participants with type 2 diabetes mellitus and high cardiovascular risk. Participants were randomly assigned to canagliflozin or placebo and followed for a mean of 188 weeks. The

Karin Rådholm, MD,
Gemma Figtree, MB
DPhil*
Vlado Perkovic, MBE
PhD
Scott D. Solomon, M
Kenneth W. Mahaffe
MD
Dick de Zeeuw, MD,

Circulation

ORIGINAL RESEARCH ARTICL

# Effect of Dapaglifl and Mortality in Ty

Editorial, see p

**BACKGROUND:** In DECLARE-TIMI 58 (Dapagli
Events–Thrombolysis in Myocardial Infarction 5
cotransporter 2 inhibitor dapagliflozin reduced

# Conclusion

- Insuffisance cardiaque : un syndrome, des phénotypes.
- Retard au diagnostic important
- Outil de diagnostic : EPOF / NtproBNP / ETT
- Screening chez les populations à risque
- Penser à instaurer un traitement chez les patients à haut risque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