FHU PREVENT-HF
Predict & Prevent Heart Failure in Young Subjects

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Université de Paris

Instituts thématiques

Inserm
Institut national de la santé et de la recherche médicale

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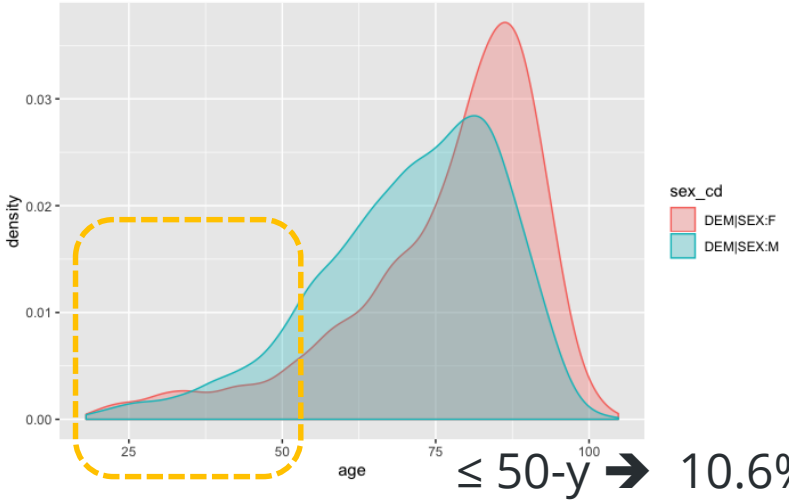
Why PREVENT-HF ?

➢ To create a care, research & educational program dedicated to HF in young patients (from ≥15 to ≤50-y)



- **Data WareHouse APHP.centre / HEGP : HF registry**
  - 11 871 patients
  - Mean age : 73.3±15.7 [min 18 – max 105]
  - HFrEF 43.6% HFmEF 11.0% HFpEF 45.4%

≤ 50-y ➔ 10.6%, mostly men (63%)

- **Different forms of HF**
  - ➢ Largely with reduced left ventricular ejection fraction
- **Different outcomes**
  - ➢ Higher rates of sudden death
- **Different origins of HF**
  - ➢ Secondary forms ++, with mid- or long-term exposure to a stress factor
- **Different expectancies**
  - ➢ Quality of life and number of years saved

Our priorities : Understand pathways leading to HF in young patients

Conditions leading to premature HF in young patients

CC H | EGP | NC K

Genetics
- Hypertrophic cardiomyopathy (*A Hagège*)
- Dystrophin-deficient cardiomyopathies (*K Wahbi*)
- Univentricular hearts (*D Bonnet*)

Mutation

Vascular
- Severe arterial hypertension (*M Azizi, PL Tharaux*)
- Secondary hypertension (*MC Zennaro*)

Vascular

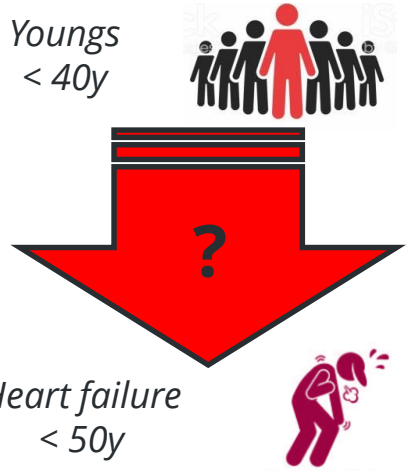
Severe Obesity
- Obesity (BMI>35) in your adults (*C Carette*)

Metabolic

Cardio-Oncology
- Cancer in young adults (Hemopathies, breast, kidney, osteosarcomas)
- Radiotherapy & Anti-K drugs (*M Mirabel*)

Toxic

1. Patients at risk ?
2. Patients trajectories ?
3. Pathophysiological processes :
   - Immunity ?
   - Cellular metabolism ?
   - Endothelial dysfunction ?
4. Interventions ?



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Our program

Patient Cohorts:

- Phenotypic & Biological characterization
- Outcomes & events
- Database & Big data

WP1. Epidemiology

- Cohorts & follow-up *(CIC-EC)*
- Sudden death *(X Jouven, JP Empana)*
- Big Data Handling & AI *(Fealinx)*

WP2. Imaging & function

- Cardiac imaging: MRI *(E Mousseaux)*, Nuclear *(B Tavitian)*
- Echocardiography (*A Hagege*)
- Vascular imaging (*P Boutouyrie*)

WP3. Biology

- Genomic analysis *(N Bouatia-Naji)*, Molecular kits *(BforCure)*
- Endothelial markers (*C Boulanger, A Eichmann, E Camerer*)
- Immune cells (*JS Silvestre*, *L Mauge*)
- Metabolism & Mitochondria (*T Wai)*
- iPSC-derived CV cells & modeling (*JS Hulot*)
- Biobanking (Blood, Urine, Tissues, Stools)

Therapies:

- New drugs repurposing
- Diagnostic tools

WP4. Therapeutic innovations

- Clinical investigations center 1418 *(CIC-P)*
- Emulated trials *(S Katsahian)*

Real-life data

- remote monitoring

WP5. Telemonitoring

- Connected T-shirts / devices (*JS Hulot / Bioserenity*)
- Online consultation

Identify the patients at risk
Define diagnostic and prognostic biomarkers
Understand the pathways

Evaluate innovations

Assess real-life impact

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Strong partnership between Clinicians, Academics and Industrials

14 Medical teams
(9 DMU CARTE)

PARIS
CENTRE DE RECHERCHE
CARDIOVASCULAIRE
PARCC
H E G P

3 start-ups :
Télémonitoring & connected devices
IA & big data analysis
Microfluidics & molecular biology

Institut Pasteur

12 research teams
(11 PARCC + 1 Pasteur)

professionnels
+ de 1 800 000
prises en charge
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99
1 300 étudiants et