



CENTRE DE RECHERCHE  
INSTITUT UNIVERSITAIRE  
DE CARDIOLOGIE  
ET DE PNEUMOLOGIE  
DE QUÉBEC

AFFILIÉ À  UNIVERSITÉ  
LAVAL

# Disease staging should replace categorical grading of valve lesions

**Marie-Annick Clavel, DVM, PhD**

Professor - Laval University (Quebec, Canada)

**Eurovalve 2022, 7<sup>th</sup> October**



Core laboratory contract - Edwards Lifesciences

Research grant - Medtronic



## European:

SAVR should be considered in patients with moderate aortic stenosis<sup>h</sup> undergoing CABG or surgical intervention on the ascending aorta or another valve after Heart Team discussion.

**IIa**

**C**

## American:

**2b**

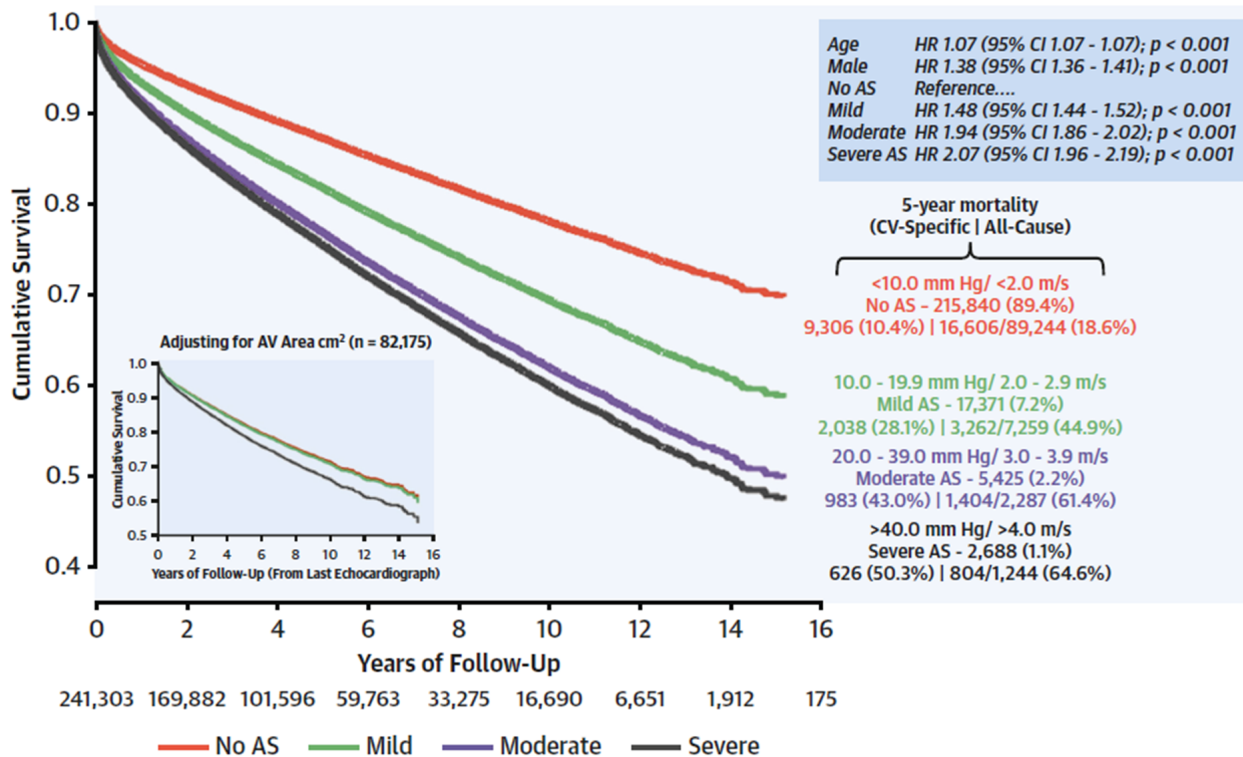
**C-EO**

11. In patients with moderate AS (Stage B) who are undergoing cardiac surgery for other indications, AVR may be considered.

# Outcomes in moderate AS



**FIGURE 3** Adjusted Long-Term Survival According to Severity of AS Derived From Mean AV Gradient and Peak AV Velocity Levels



In 1 to 3 years: 10 to 20% patients with moderate AS are dead

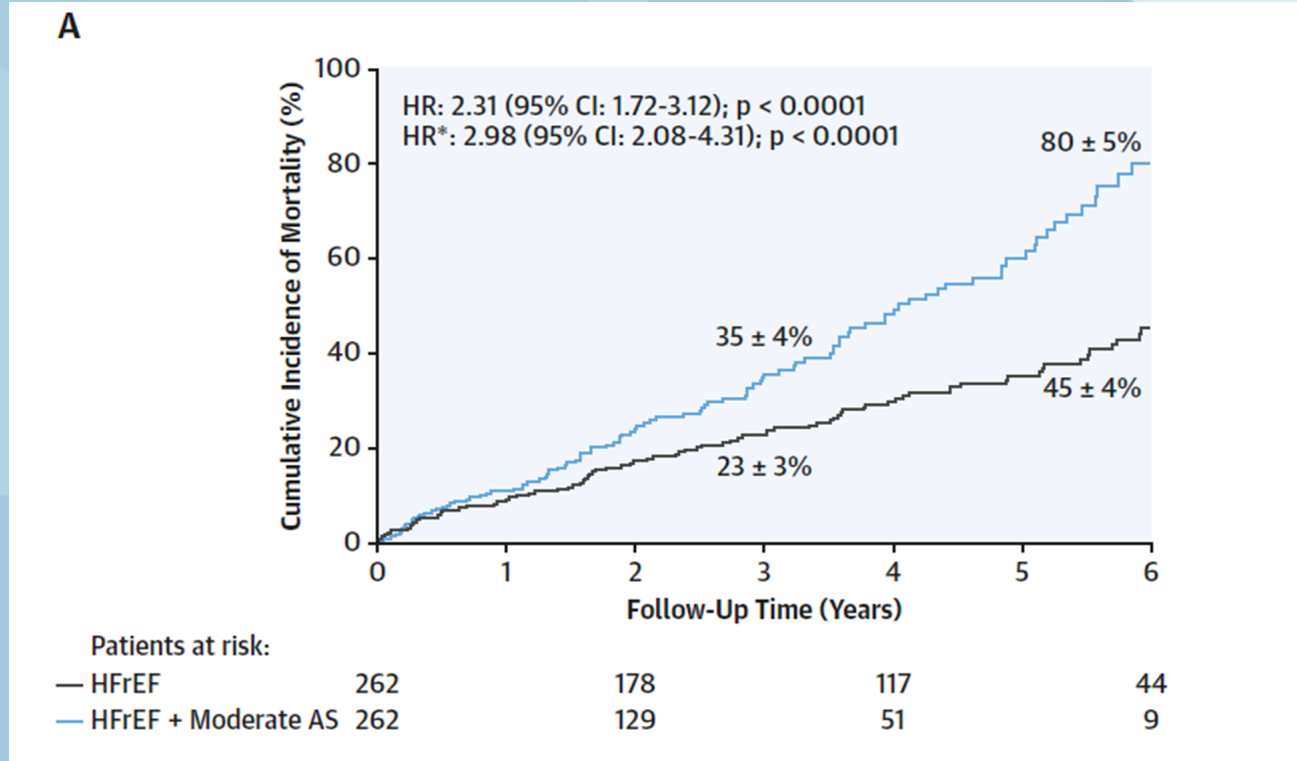
1-3 years is the time of follow-up, in the guidelines, for moderate AS

# Moderate AS in HF patients

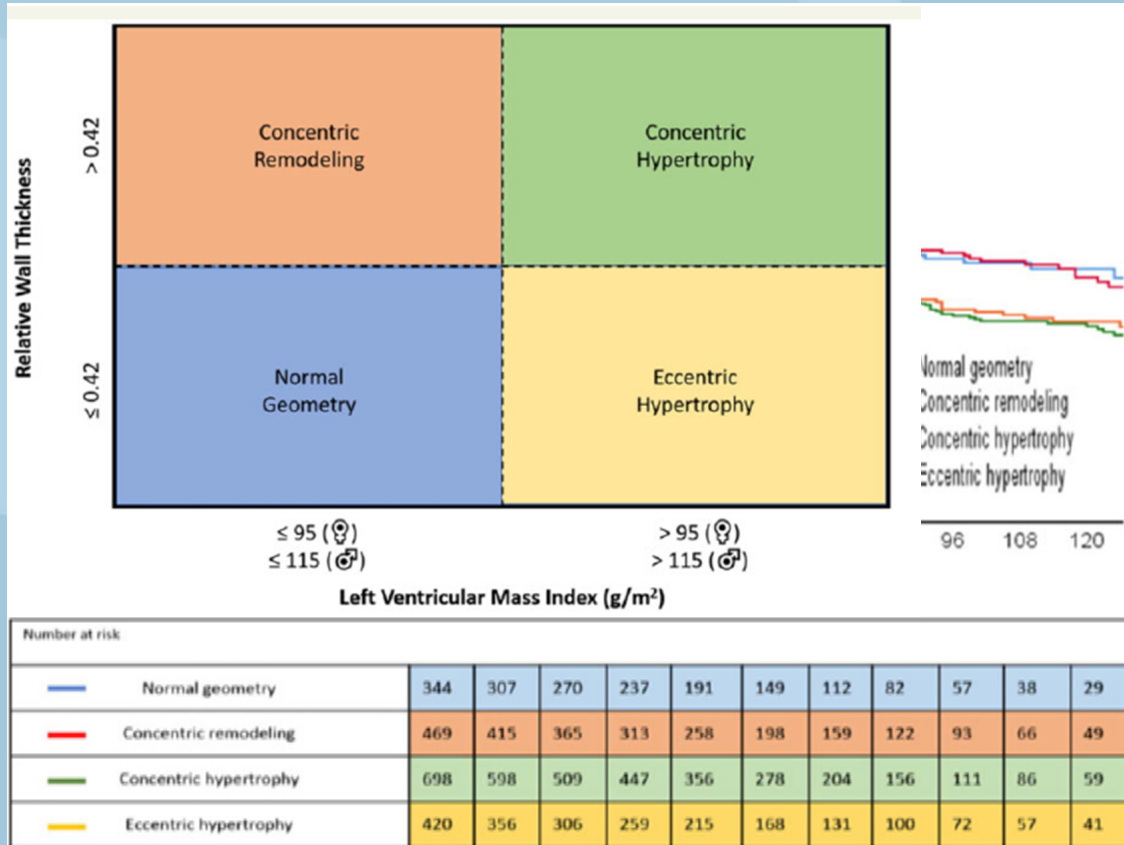


CENTRE DE RECHERCHE  
INSTITUT UNIVERSITAIRE  
DE CARDIOLOGIE  
ET DE PNEUMOLOGIE  
DE QUÉBEC

ATTILÉ A  
UNIVERSITÉ  
LAVAL



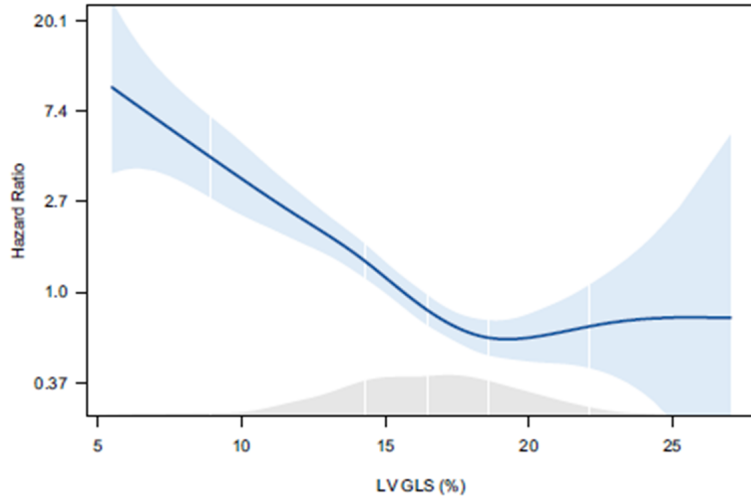
# LV remodeling in moderate AS



57% have LV hypertrophy at baseline (22% eccentric and 35% concentric)

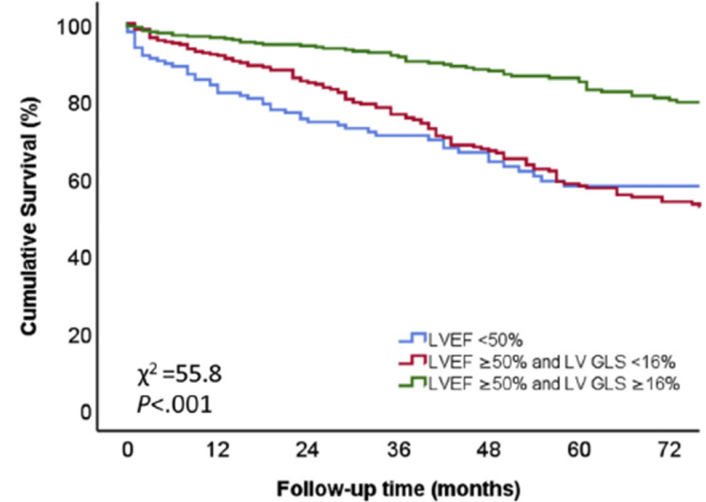
Patients with LV hypertrophy have worse outcomes

# LV function in Moderate AS (GLS)



**Figure 1** Association between LV GLS and the risk for all-cause mortality among patients with moderate AS and LVEF  $\geq 50\%$ .

37% patients had LVEF  $\geq 50\%$  and GLS  $< 16\%$   
19% patients had LVEF  $< 50\%$



Number at risk		0	12	24	36	48	60	72
—	LVEF < 50%	145	118	93	70	52	43	34
—	LVEF $\geq 50\%$ and LV GLS < 16%	279	254	203	167	131	102	89
—	LVEF $\geq 50\%$ and LV GLS $\geq 16\%$	336	324	282	236	201	166	145

# Staging in moderate or severe asymptomatic AS patients



CENTRE DE RECHERCHE  
INSTITUT UNIVERSITAIRE  
DE CARDIOLOGIE  
ET DE PNEUMOLOGIE  
DE QUÉBEC

ATTILÉ A. UNIVERSITÉ  
LAVAL

**Stages 3-4: Pulmonary or tricuspid valve damage, or RV damage or subclinical heart failure**

- Pulmonary hypertension (SPAP  $\geq 60$  mm Hg)
- Tricuspid regurgitation ( $\geq$  moderate)
- RV systolic dysfunction ( $\geq$  moderate)
- Moderate to severe low-flow (stroke volume index  $< 30$  ml/m<sup>2</sup>)

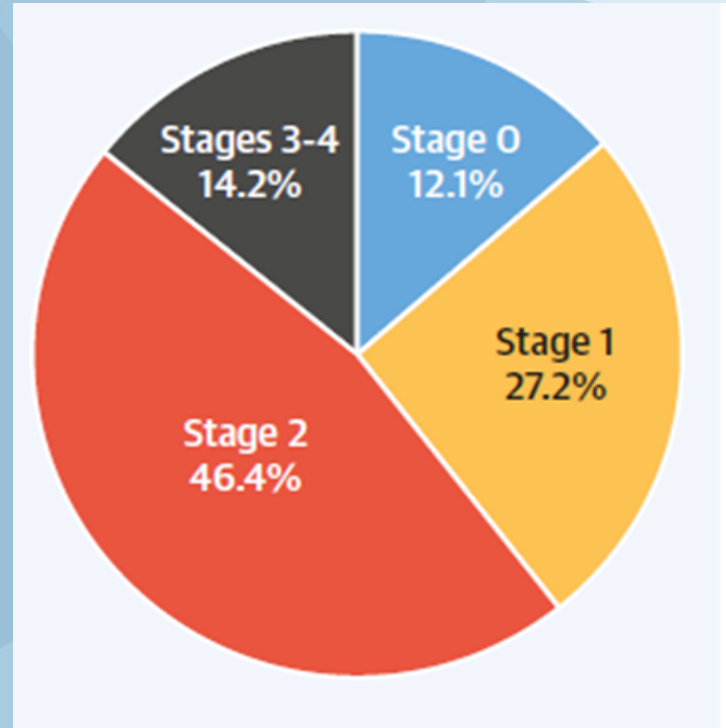
**Stage 2: LA or mitral valve damage**

- Left atrial enlargement (LA volume  $> 34$  ml/m<sup>2</sup>)
- Atrial fibrillation
- Mitral regurgitation ( $\geq$  moderate)

**Stage 1: LV damage**

- LV hypertrophy (LV mass index  $> 95$  g/m<sup>2</sup> women;  $> 115$  g/m<sup>2</sup> men)
- Grade  $\geq$  II LV diastolic dysfunction
- Impaired LV global longitudinal strain ( $\leq |15\%$ )
- Subclinical LV systolic dysfunction (LVEF  $< 60\%$ )

**Stage 0: No cardiac damage**





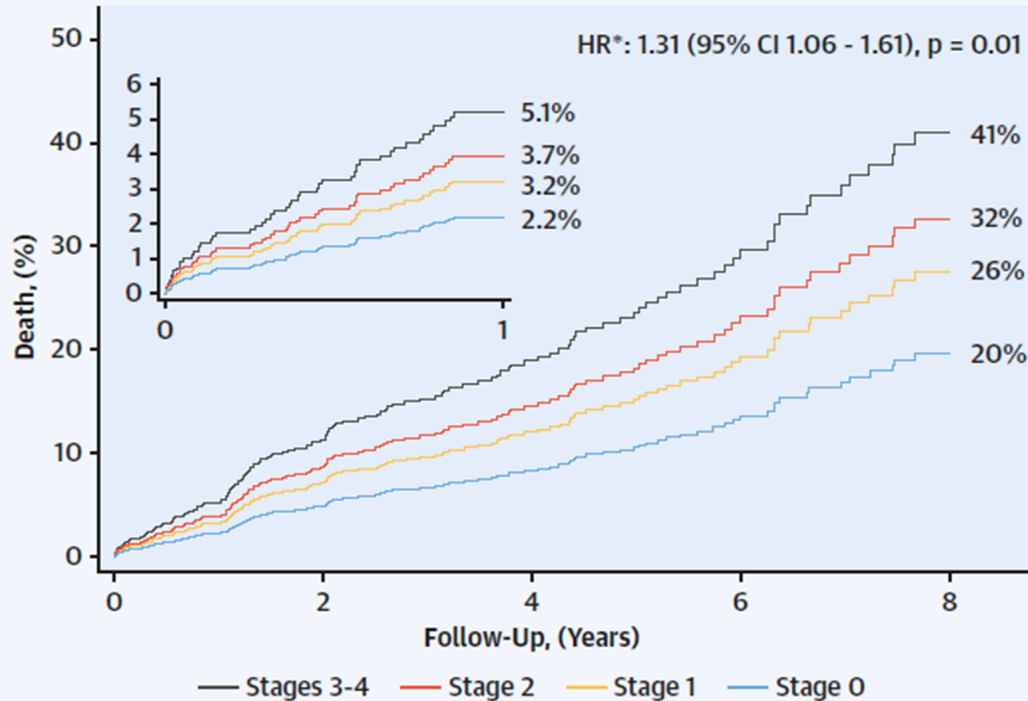
# Staging in moderate or severe asymptomatic AS patients - Outcomes



CENTRE DE RECHERCHE  
INSTITUT UNIVERSITAIRE  
DE CARDIOLOGIE  
ET DE PNEUMOLOGIE  
DE QUÉBEC

ATTILÉ A UNIVERSITÉ  
LAVAL

## All-Cause Mortality





- **Moderate AS** could be **associated with LV adverse remodeling** and clinical or sub-clinical **disfunction**
- The **severity of AS** does not kill the patients
- The most important evaluation is the **ability of the heart** (LV and RV) to **endure the pressure overload**  
i.e. a healthy heart could endure a severe AS while an impaired heart could not: impairment could be link or not to AS... (diabetes, amyloidosis,...)

# Thank you for your attention



CENTRE DE RECHERCHE  
INSTITUT UNIVERSITAIRE  
DE CARDIOLOGIE  
ET DE PNEUMOLOGIE  
DE QUÉBEC

ATTILÉ À  UNIVERSITÉ  
LAVAL



FONDATION  
INSTITUT UNIVERSITAIRE  
DE CARDIOLOGIE  
ET DE PNEUMOLOGIE  
DE QUÉBEC



Chaires  
de recherche  
du Canada

Canada  
Research  
Chairs

Canada 



Heart & Stroke  
Cœur + AVC TM/MC



IRSC CIHR

Instituts de recherche en santé du Canada Canadian Institutes of Health Research

Fonds de la recherche en santé

Québec 

