

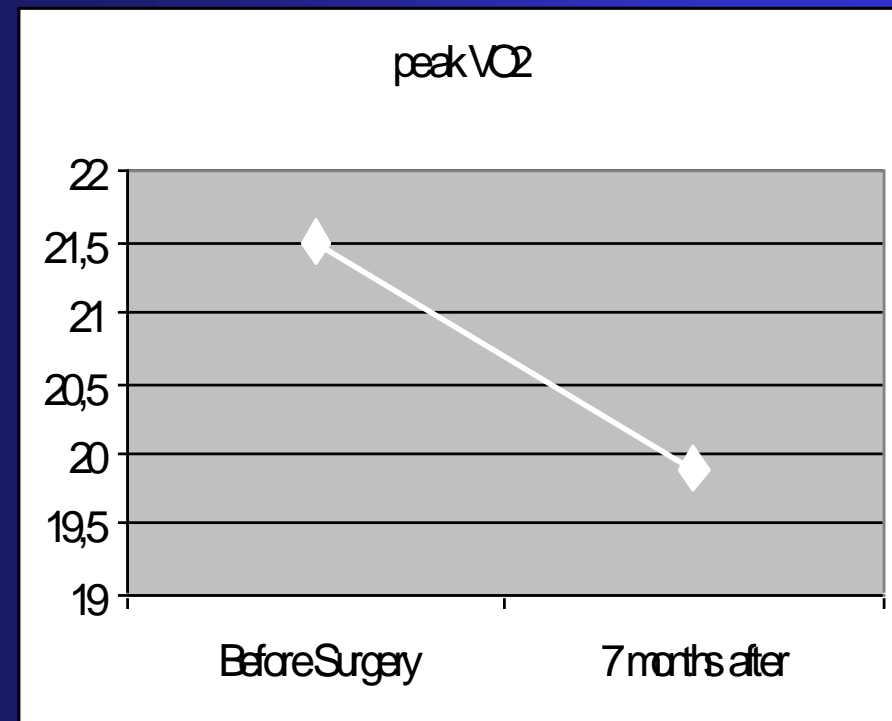
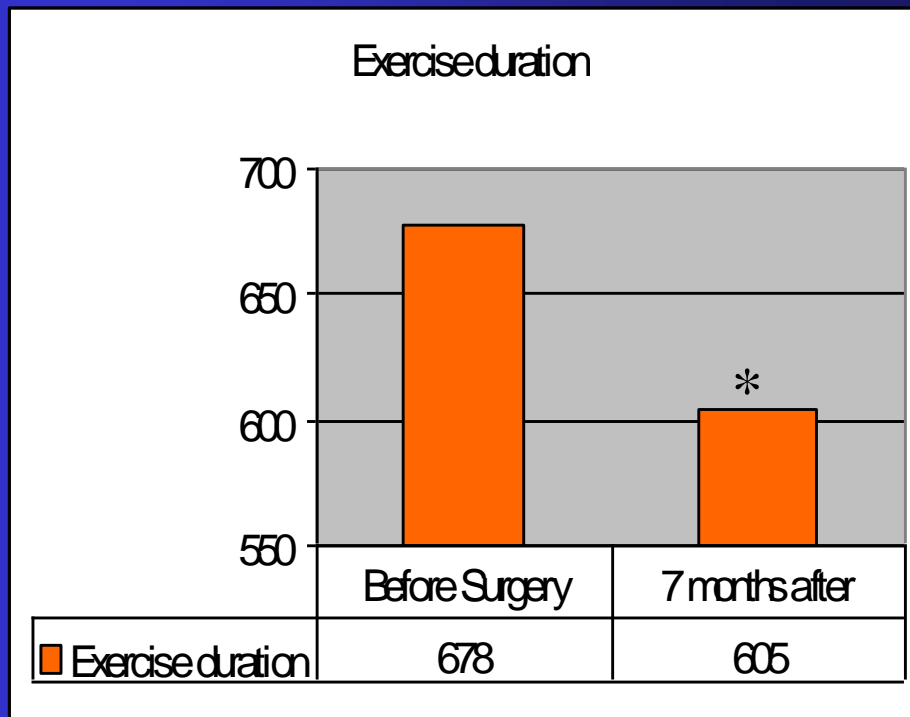
# Cardiac Rehabilitation after Mitral Valve Repair

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Tabet

On behalf of the Working group of  
Cardiac Rehabilitation  
of the French Society of Cardiology

# Background (1) : Exercise tolerance after mitral valve repair

216 ± 80 days after MVR; n = 16



# Therefore

- After MVR , Exercise Training is necessary

**BUT**

- Won't we damage the repair results ?
  - Surgeons are reluctant to allow training because the mitral scar could be fragile

# Background (2) :

## Antithrombotic Therapy after MVRRepair :

- No Guideline<sup>1.2.3</sup>
- No Study

(1)Borrow et al. **ACC/AHA guidelines** for the management of patients with valvular heart disease.

J Am Coll Cardiol 1998; 31 :1486-1580

(2) Gohlke-Barwolf C et al.Guidelines for prevention of thromboembolic events in valvular heart disease.

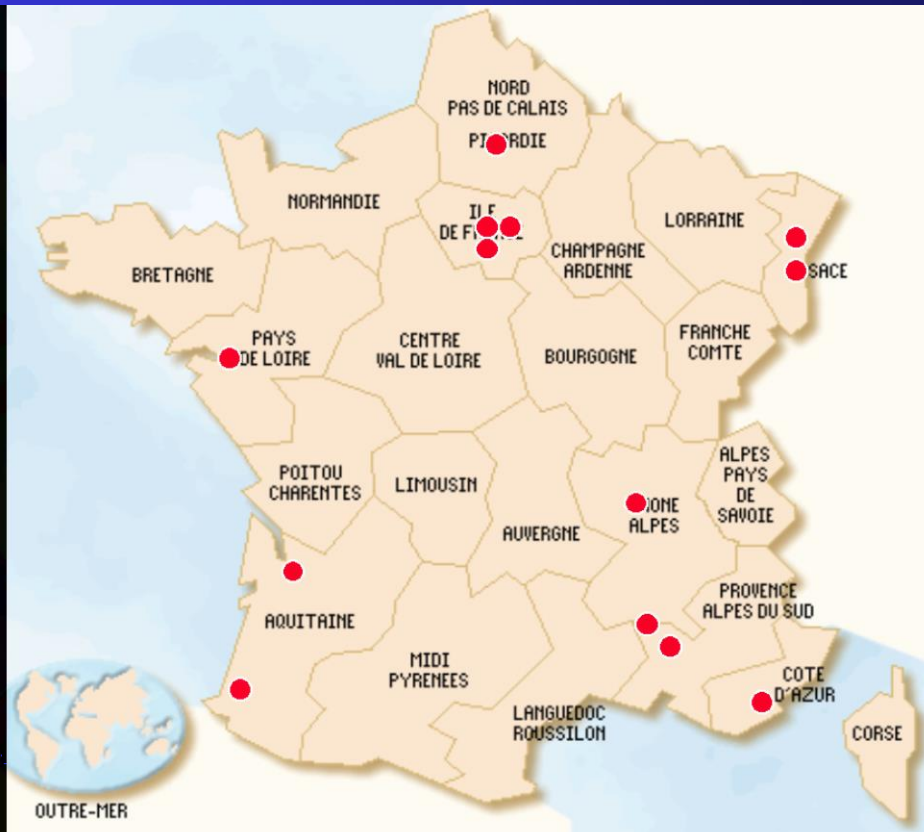
**Eur Heart J** 1995; 16 : 1320-30

(3) Salem DN et al. Antithrombotic therapy in valvular heart disease.

Seventh **ACCP Conference** on Antithrombotic and Thrombolytic therapy.

Chest 2004; 126 : 457S

# Prospective multicentric study (13 Centres, September 2002-July 2003)



## Patients :

-Selection :

-every patient

transferred to a Cardiac  
Rehabilitation Centre less  
than 60 days after MVR

-Endpoints :

-Echo,  $VO_2$ , clinical  
evaluation

# Results

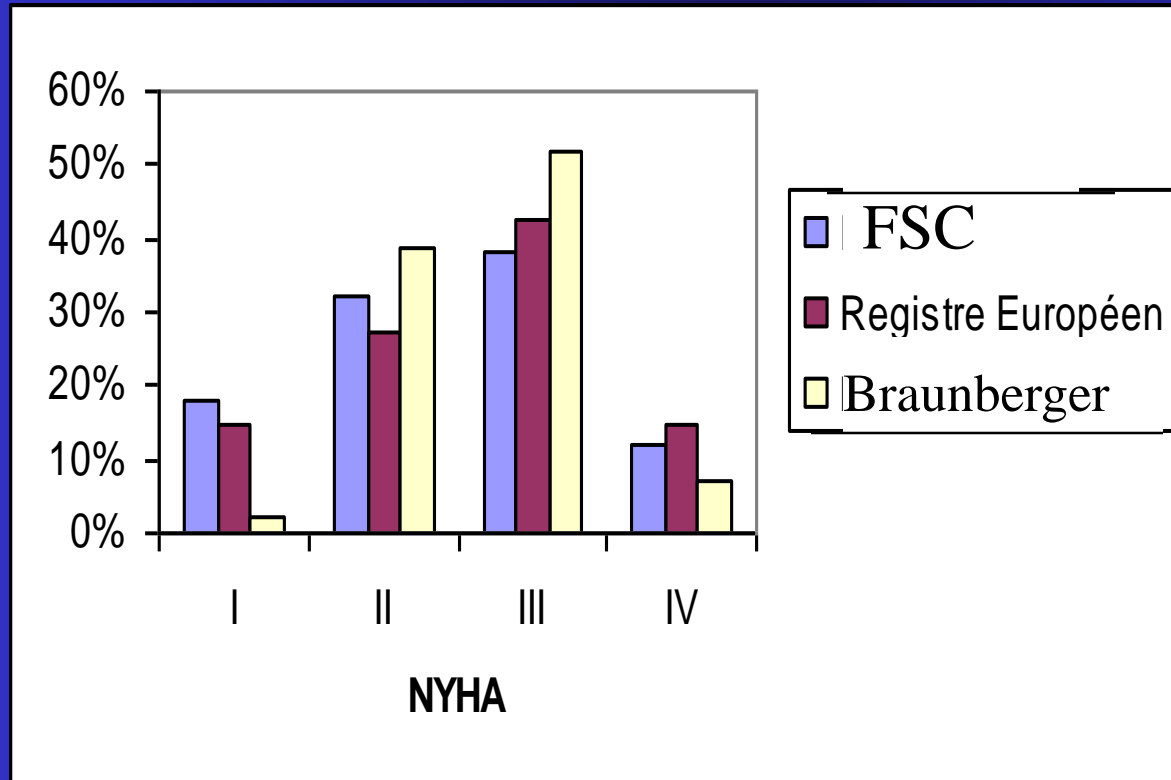
# Population

- N = 251 (261 selected); 59 ± 14 years old
- Men 70 %

## MI Aetiology

	FSC	Euro Heart Survey <sup>1</sup>
Degenerative	69 %	61.3 %
Rheumatic	10 %	14.2 %
Ischaemic	11 %	7.3 %
Endocarditis	5 %	3.5 %
Others	5 %	13.7 %

# Pre Operative NYHA Class



Pre Op LVEF :  
 $55 \pm 10 \%$

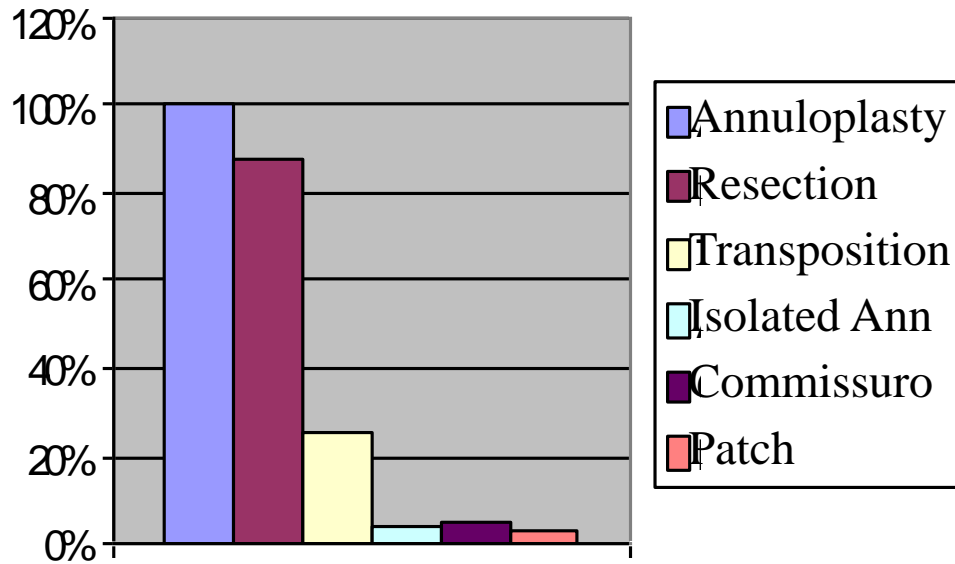
Pre Op NYHA :  
 $2.3 \pm 0.9$

**Iung** et al. The Euro Heart Survey on valvular heart Disease Eur Heart J 2003;24 : 1231-43.

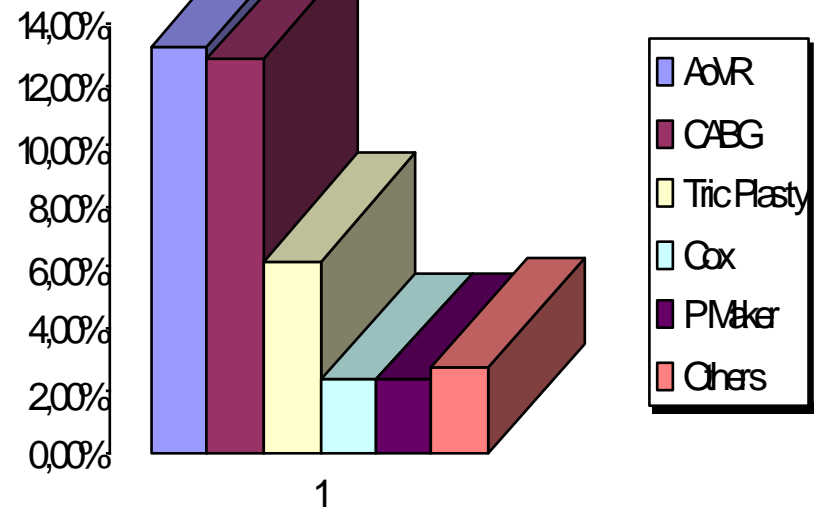
**Braunberger** et al. very long term results (more than 20 years) of valve repair with carpentier's techniques in non rheumatic mitral valve insufficiency. Circulation 2001 ; 104 (suppl I) : I-8-I-11

# Kind of operation

## Mitral Valve Repair



## Associated Surgery



# Thromboembolic Events

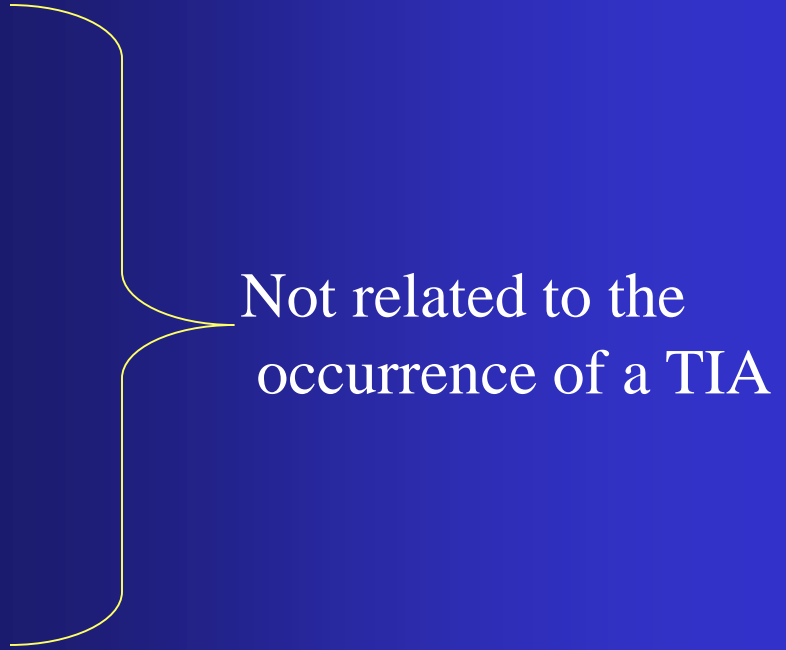
# Antithrombotic Therapy (AT)

- Vitamin K Antagonist (VKA) Group :
  - Heparin (high dose) started on Day 1
  - VKA started between Day 3 and Day 6
  - Heparin stopped when INR > 2
- Aspirin (ASA) Group
  - ASA started between day 2 and day 6
  - Heparin (low dose) stopped between day 5 and day 10
- No AT Group :
  - Heparin (low dose) stopped between day 5 and day 10

# 10 Transient Ischaemic neurologic Attacks (TIA) 24.2 J (4-52) after MVR

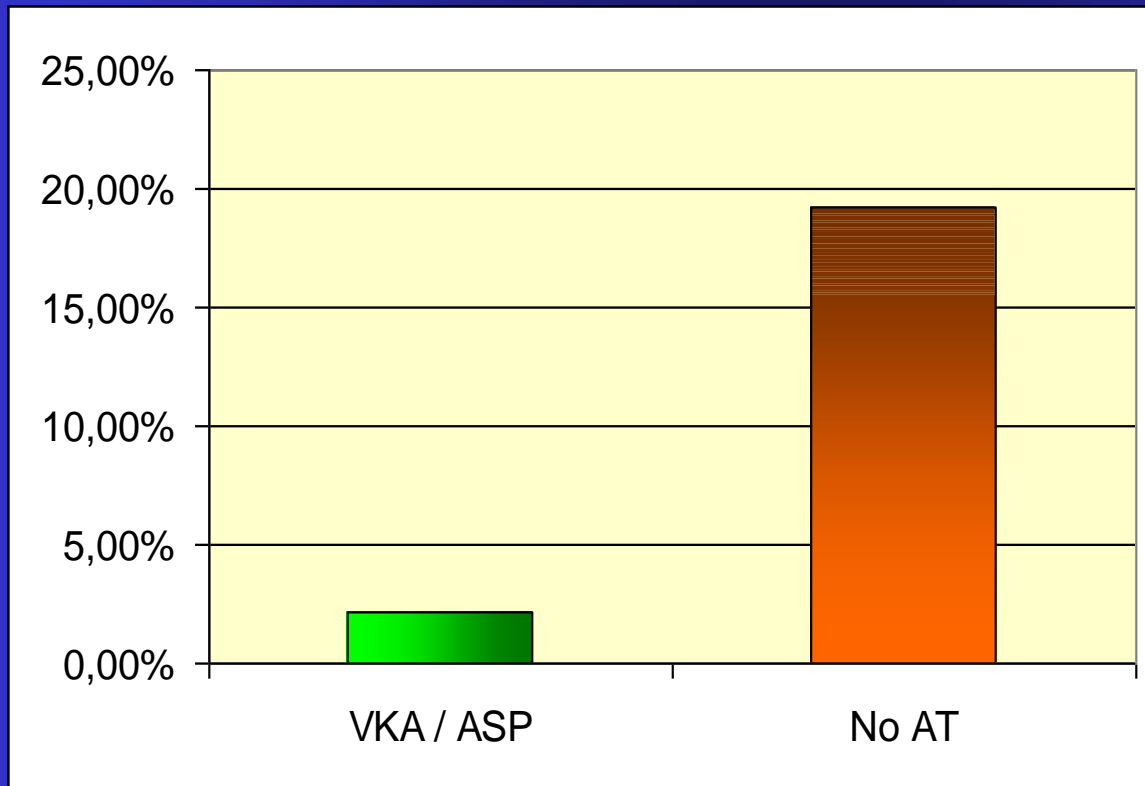
- Predisposing causes ?

- Age
- Sex
- Size LA or LV
- AF
- Associated surgery
- Mitral leaflet involved
- Carpentier's classification



Not related to the  
occurrence of a TIA

# TIA and Antithrombotic Therapy



**169 pts : VKA alone**

**15 : VKA + Aspirin**

**39 : Aspirin alone**

**28 : No AT**

**5 of the 28 patients receiving no antithrombotic had a TIA : 18 %**

**5 of the 223 pts receiving VKA and/or aspirin had a TIA : 2%**

**OR = 9.0**

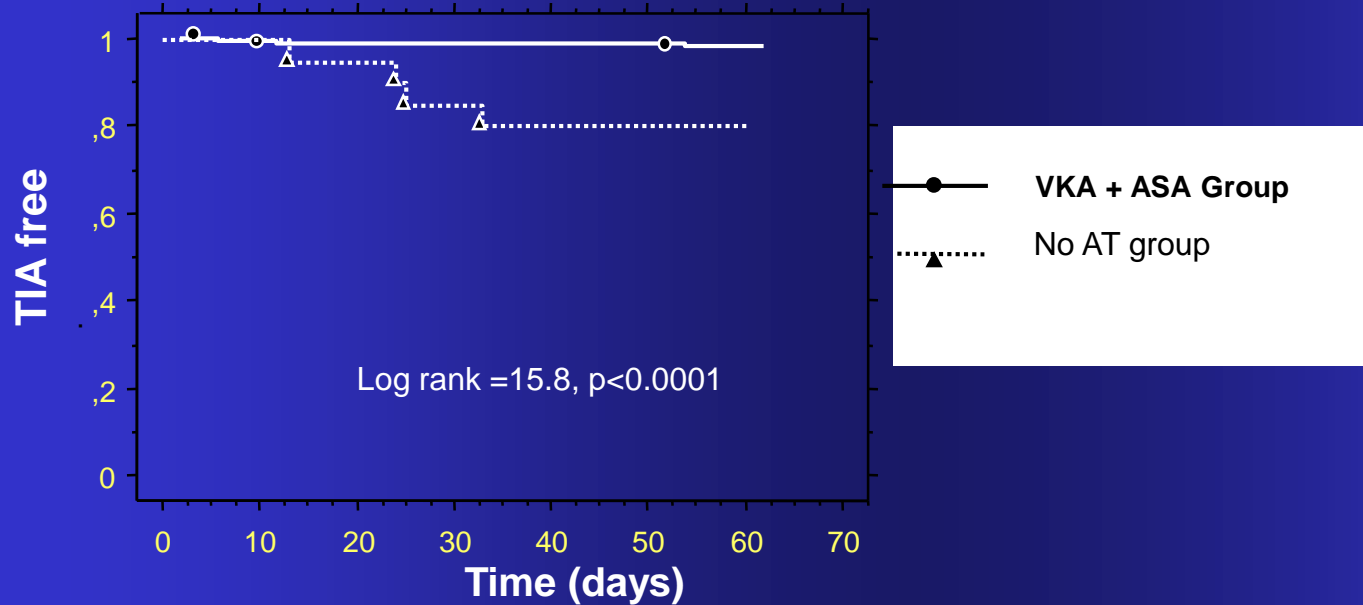
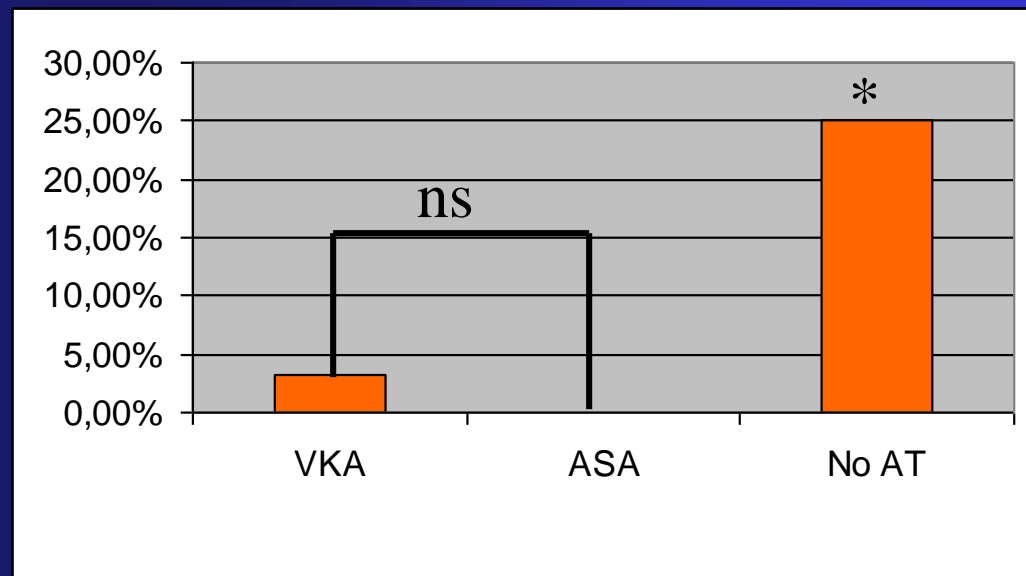
**P<0.0001**

The real question : is an  
Antithrombotic therapy necessary  
after MV repair,  
even in patients in whom choice  
of AT is not influenced  
by a concomitant pathology ?

# Population where the choice of AT is actually open

- After excluding patients in whom AT indication was modified by a concomitant pathology
  - Concomitant surgery
    - AoVR, CABG ...
  - Pre or post operative AF
- Population available for the study n= 143

7 TIA among 143 patients :  
VKA group : 3/91  
ASA group : 0/36  
No AT group : 4/16



# Conclusion

- An Antithrombotic Therapy is necessary at least during the first 6 post operative weeks after MV repair even in patients in sinus rhythm and without concomitant pathology
- There seems to be no advantages in performing early anticoagulation therapy compared with antiplatelet regimen ?

# Rehabilitation : Modalities

- Delays :
  - Surgery-CPT<sub>1</sub> :  $20.7 \pm 10.2$  J
  - CPT<sub>1</sub>- CPT<sub>2</sub> :  $20.6 \pm 15.7$  J
- Sessions :
  - Gymnastic sessions :  $13.7 \pm 5.4$
  - Ergometric bicycle :  $11 \pm 4$ 
    - Mean training workload  $58.3 \pm 27.5$  Watts
  - Mean THR :  $103.2 \pm 17.7$  bpm

# Echographic Mitral Repair Evolution

$$MI_1 = 0.59 \pm 0.05$$

$$MI_2 = 0.57 \pm 0.05$$

$$LVEF_1 = 53 \pm 10$$

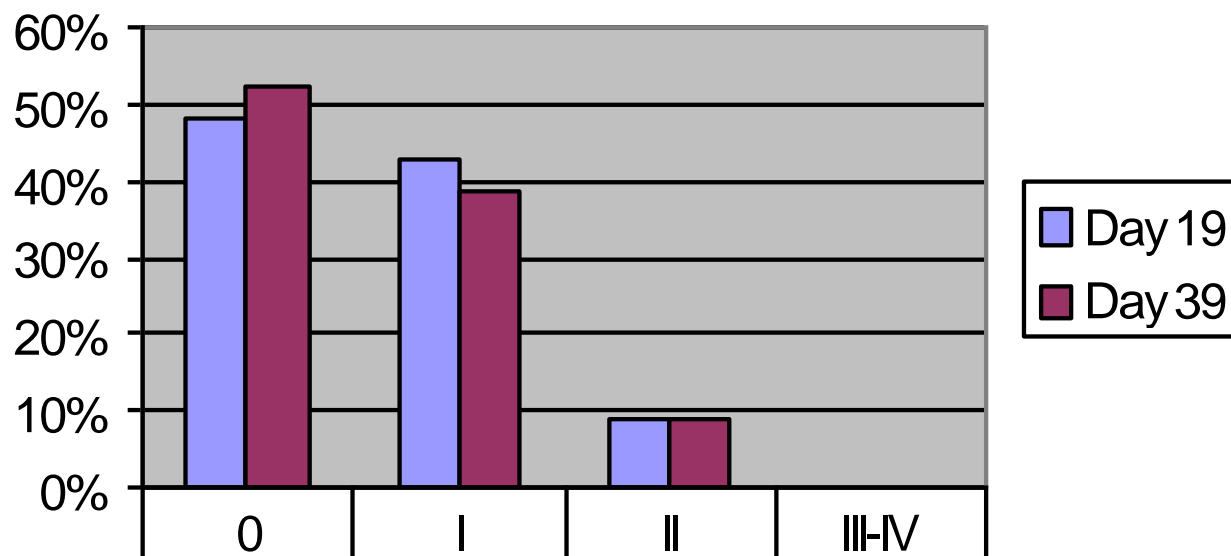
$$LVEF_2 = 55 \pm 9$$

( $p < 0.05$ )

$$LVEDV_1 = 113$$

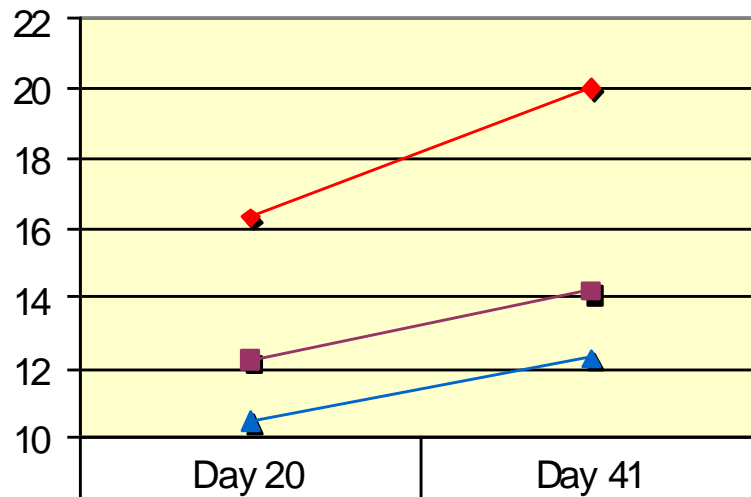
$$LVEDV_2 = 109$$

( $p < 0.05$ )



	0	I	II	III-IV
Day 19	48%	43%	9%	0%
Day 39	52%	39%	9%	0%

# Cardiopulmonary Exercise Tests Evolution



◆ Peak VO2	16,3	20
■ AT	12,2	14,2
▲ O2 pulse	10,5	12,3

	% increase	p
Peak VO2	+ 22 %	$10^{-4}$
AT	+ 16 %	$10^{-4}$
O2 pulse	+ 18 %	$10^{-4}$
Ex duration	+ 34 %	$10^{-4}$
Chron reserve	+ 18 %	$10^{-4}$

# Conclusion

## Early Exercise Training after MVR

- Is efficient :
  - Peak VO<sub>2</sub> : +22%; AT : + 16%...
- Is Safe :
  - Neither new onset nor MI aggravation
  - Management of usual post operative complications
- An antithrombotic therapy is necessary during the first weeks following MVR