

# STS/EACTS Latin America Cardiovascular Surgery Conference

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info@cardiovascularsurgeryconference.org  
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## Incidence of Postoperative Atrial Fibrillation after minimally invasive mitral valve surgery

Saldaña L, Quintero A, Escobar J, Vanegas N, Marin M, Rendon JC, **Jaramillo JS**  
Clínica CardioVID; Medellin, Colombia

CLÍNICA CARDIO   
Obra de la Congregación Mariana 



# Disclosure Information

- Jaramillo JS, Rendon JC are Consultant for the following companies:
  - Johnson & Johnson
  - Medtronic

# INTRODUCTION

Atrial fibrillation (AF) is the most common complication after cardiac surgery. By conventional approach, it occurs between 37% and 50% after valve surgery, 60% after combined valve surgery.

**In a previous institutional study, we reported an incidence of 46% for AF after conventional sternotomy.**

# INTRODUCTION

Minimally Invasive approach (MIS) for valve surgery is associated with less bleeding, reduced wound infections, less incidence of AF, faster postoperative recovery, reduced hospital mortality and excellent cosmetic results.

We are performing MIS in CardioVID Hospital since November 2010. From 2013 until today we have done 200 mitral repairs and replacement surgeries

## GENERAL OBJECTIVE

- To determine the incidence of postoperative AF in patients underwent to MIS in mitral valve interventions.

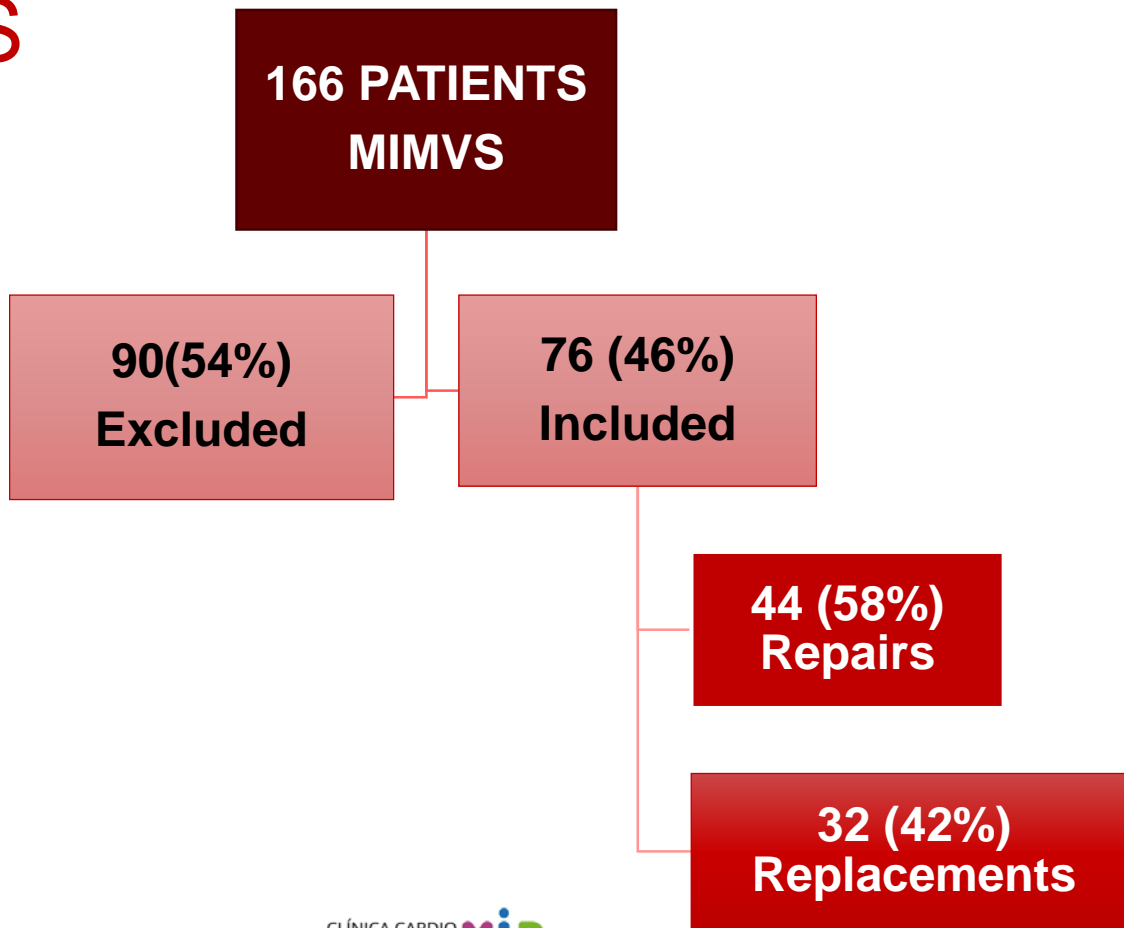
## SPECIFIC OBJECTIVES

- To identify preoperative, intraoperative and postoperative risk factors that are significantly associated with the development of postoperative AF
- To compare ICU and total inpatients LOS between patients with and without postoperative AF.

# METHODS

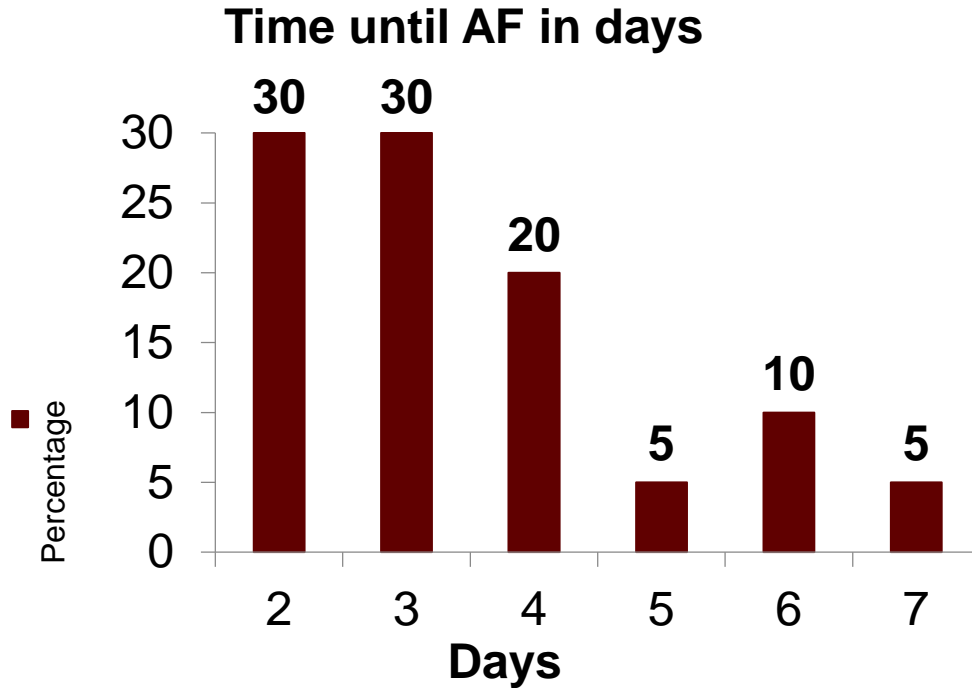
- Observational, descriptive and retrospective nested case - control study.
- From January 2013 to November 2015
- **Selection criteria:**
  - Adult patients that underwent mitral valve surgery using minimally invasive approach were included.
  - Patients with previous history of arrhythmias, cardiac surgeries, current active infective endocarditis and emergency situation were excluded.
  - Deaths were also excluded as competitive risk was taken into account.

# RESULTS



# RESULTS

**Overall incidence of AF was 26%**



**80% of this patient group developed AF during the first four postoperative days**



# RESULTS

## BIVARIATE ANALYSIS

	NON AF GROUP N=56	AF GROUP N=20	P VALUE FOR COMPARISON
<b>CLINICAL VARIABLES</b>			
Age years (mean, $\pm$ SD)	52 $\pm$ 13	60 $\pm$ 10	0.01
Older than 60 y (n, %)	17 (30.4%)	14 (70%)	0.002
Male (n, %)	37 (66%)	7 (35%)	0.01
Female (n, %)	19 (34%)	13(65%)	
Body mass index (mean, range)	24.5 $\pm$ 3.6	24.6 $\pm$ 3.4	0.93
LVEF%	60 $\pm$ 7	59 $\pm$ 6	0.47
<b>COMORBIDITIES</b>			
Arterial hypertension (n, %)	31 (55.4%)	9(45%)	0.29
Smoking (n, %)	18 (32%)	8 (40%)	0.35
Dyslipidemia (n, %)	15 (27%)	5 (25%)	0.56
Hypothyroidism (n, %)	9 (16%)	5 (25%)	0.28
Obesity(BMI >30) (n,%)	4 (7%)	3 (15%)	0.26

# RESULTS

## BIVARIATE ANALYSIS

	NON AF GROUP N=56	AF GROUP N=20	P VALUE FOR COMPARISON
<b>PREOPERATIVE MEDICATION</b>			
Beta blockers (n, %)	<b>14 (25%)</b>	<b>6 (30%)</b>	0.44
<b>PROCEDURE DATA</b>			
Single Procedure (n, %)	<b>52 (93%)</b>	<b>16 (80%)</b>	0.12
Combined Procedure (n, %)	<b>4 (7%)</b>	<b>4 (20%)</b>	
<b>Etiology</b>			
Degenerative Disease	<b>48 (86%)</b>	<b>15 (75%)</b>	0.22
Rheumatic Disease	<b>8 (14%)</b>	<b>5 (25%)</b>	
<b>Type of surgery (n, %)</b>			
Repair	<b>33 (59%)</b>	<b>11 (55%)</b>	0.48
Replacement	<b>23 (41%)</b>	<b>9 (45%)</b>	
CPB time min (median, Interquartile range)	<b>134 (107-157)</b>	<b>121 (106-158) minutes</b>	0.72
Aortic cross-clamp time min (median, Interquartile range)	<b>90 (81-114) minutes</b>	<b>85 (76-110) minutes</b>	0.94

# RESULTS

Following Hosmer Lemeshow's criteria, a multivariate logistic regression was performed to adjust all identified risk factors related to the main outcomes.

**Age older than 60 years old and female sex, remained as independent risk factors to develop AF.**

## Multivariate predictors of Postoperative AF

	P value	Odds Ratio	95% C.I.	
			Lower limit	Upper limit
Female sex	<b>,039</b>	3,886	1,069	14,125
Rheumatic Etiology	,445	,526	,101	2,736
Combined Procedure	,309	,419	,078	2,242
Age Older than 60	<b>,003</b>	7,034	1,924	25,715

# RESULT

## S

AF significantly increased hospital stay, both at the ICU and total Inpatients LOS

**Patients with AF had the double of the total stay when compared with patients without AF**

CLINICAL OUTCOMES	NON AF GROUP N=56	AF GROUP N=20	P VALUE FOR COMPARISON
Readmission rate (n,%)	1 (2%)	2 (10%)	0,16
LOS intensive care unit (median, Interquartile range)	1 (1-3) days	3(2-7) days	0,01
Posoperative Hospital stay, days (median, Interquartile range)	4 (3-6) days	9 (6-18) days	0,005
Total length of stay (median, Interquartile range)	6 (4-9) days	12 (8-24) days	0,007

# CONCLUSIONS

- In comparison with a previous report from our own experience with the conventional approach, the MIS mitral valve surgery improved the incidence of postoperative AF (46% vs 26%)
- We found similar results to Mihos, Santana, Lamas et al who reported an incidence of 25% for MIS approach and 37% in conventional sternotomy.

# CONCLUSIONS

- Our findings are consistent with previous reports from literature regarding age and female sex as independent and important risk factors. Although, we didn't find an association between surgery times and AF.
- Our data regarding hospital stay is also consistent with previous reports from other authors. Both ICU and Inpatients LOS were significantly higher for the group with AF in comparison with our controls.

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# Thank You

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