

ECOCARDIOGRAFIA 2015 **XVII Congresso Nazionale SIEC**



Società Italiana di Ecografia Cardiovascolare

WWW.SIEC.IT

**ENDOCARDITI NON
COMPLICATE. SEMPRE
CHIRURGIA PRECOCE?**

ENRICO CECCHI

Ospedale Maria Vittoria

ASL TO2. Torino

REGISTRO ITALIANO - RIEI

Complicazione/outcome	No	Sì	Se sì...
Stroke	<input type="checkbox"/>	<input type="checkbox"/>	Tipo: <input type="checkbox"/> embolico <input type="checkbox"/> emorragico <input type="checkbox"/> sconosciuto data: __/__/____
TIA	<input type="checkbox"/>	<input type="checkbox"/>	data: __/__/____
Embolia sistemica (non stroke) data: __/__/____	<input type="checkbox"/>	<input type="checkbox"/>	Localizzazione: <input type="checkbox"/> vasi periferici <input type="checkbox"/> fegato <input type="checkbox"/> milza <input type="checkbox"/> altro, specificare: _____
Insufficienza valvolare severa	<input type="checkbox"/>	<input type="checkbox"/>	data: __/__/____
Scopenso cardiaco data: __/__/____	<input type="checkbox"/>	<input type="checkbox"/>	NYHA: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV
Estensione perivalvolare (ascessi, fistole...)	<input type="checkbox"/>	<input type="checkbox"/>	data: __/__/____
Emocolture persistentemente positive	<input type="checkbox"/>	<input type="checkbox"/>	Durata giorni.....
Nuovo disturbo di conduzione	<input type="checkbox"/>	<input type="checkbox"/>	Specificare _____ Data BAV più avanzato: __/__/____
Febbre persistente	<input type="checkbox"/>	<input type="checkbox"/>	Durata giorni.....
Persistente attivazione PCR	<input type="checkbox"/>	<input type="checkbox"/>	Durata giorni.....
Altro __/__/____	<input type="checkbox"/>	<input type="checkbox"/>	Specificare: _____

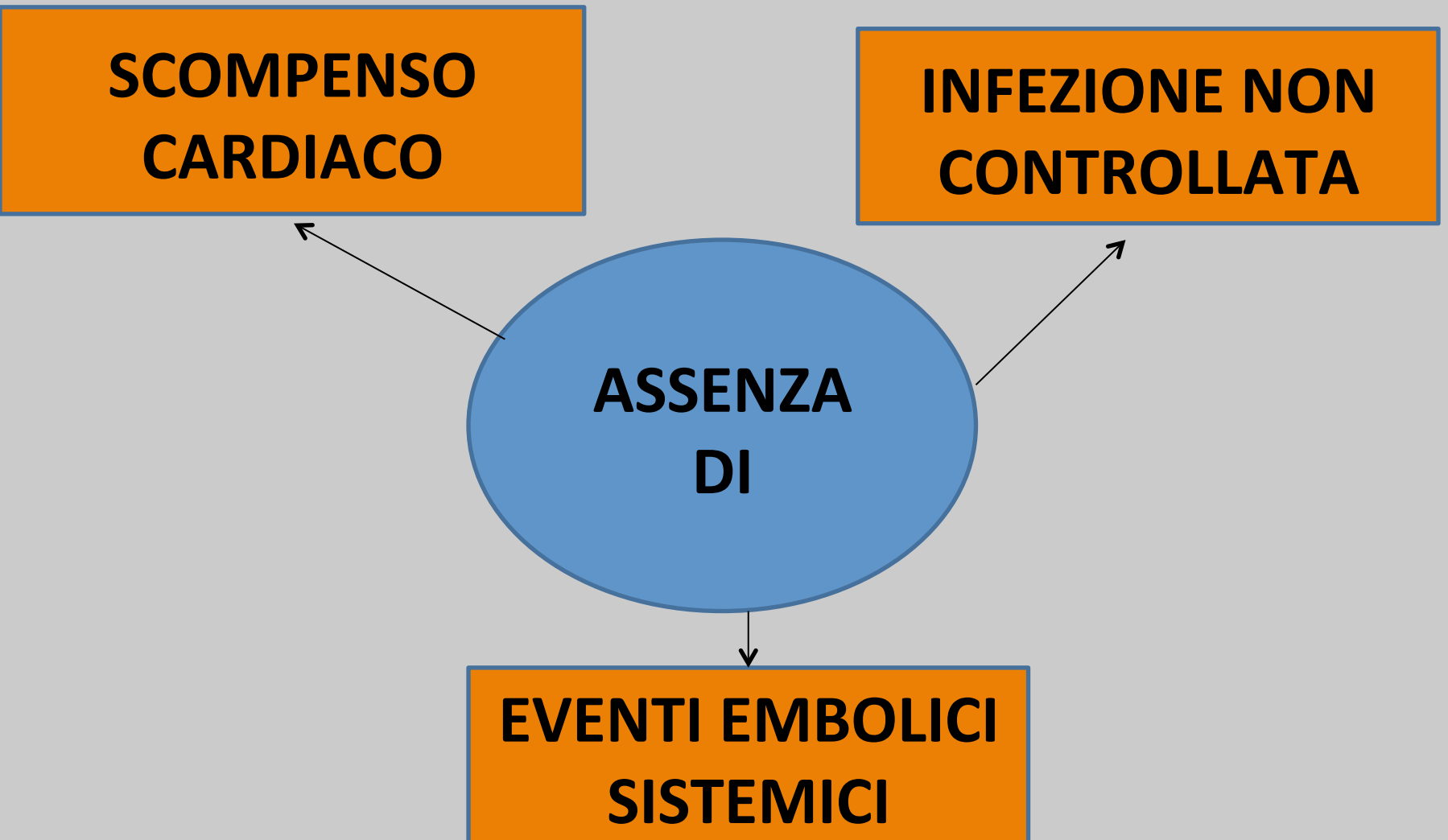
EI NON COMPLICATA

**SCOMPENSO
CARDIACO**

**INFEZIONE NON
CONTROLLATA**

**ASSENZA
DI**

**EVENTI EMBOLICI
SISTEMICI**



INTERVENTO NELLA FASE ATTIVA DI EI

**EVITARE PROGRESSIVO
SCOMPENSO CARDIACO**



**RISCHIO
SIGNIFICATIVO**

**EVITARE DANNO
STRUTTURALE IRREVERSIBILE**

**PREVENIRE EMBOLIA
SISTEMICA**

RISCHIO DI RECIDIVA DI INFEZIONE

- **DURATA DELLA PRECEDENTE TERAPIA ANTIBIOTICA:
NO***
- **TRATTAMENTO ANTIBIOTICO POSTOPERATORIO**
- **COMPLETA ASPORTAZIONE PARTE INFETTA E
METODI DI RICOSTRUZIONE**

***Olaison L. Q.J.Med 1996;89: 267-378.**

Table 3 Outcome of the 291 patients with infective endocarditis operated during antimicrobial therapy

	≤ 1 st week surgery group (n = 95)	> 1st week surgery group (n = 196)	P-value
6-month mortality	14 (15)	23 (12)	0.47
Relapses and postoperative valvular dysfunction	15 (16)	7 (4)	0.0005
Relapses	8 (8)	4 (2)	0.02
Postoperative valvular dysfunction	7 (7)	3 (2)	0.02

Values are expressed as number (%).

CASO CLINICO

- **DONNA DI 64 ANNI.**
- **IPERPIRESSIA DA UN MESE, RECENTE DISPNEA.**
- **EMOCOLTURE NEGATIVE**
- **ECOCARDIO TRANSTORACICO E TRANSESOFAGEO POSITIVI CON GROSSA VEGETAZIONE MITRALICA.**



- **INTERVENTO DI SVM CON BIOPROTESI.**
- **LIEVE DISTACCO IMMEDIATO. IM LIEVE-MODERATA.**
- **DOPO 2 MESI EI DA STR. AGALACTIAE, TRATTATA CON TERAPIA MEDICA**
- **12 ANNI DOPO: OLIGOSINTOMATICA. ALTRE PATOLOGIE. DISFUNZIONE BIOPROTESI DEGENERATA DA CONSIDERARE PER RE-SVM**

CHIRURGIA E' INDICATA

**PAZIENTI CON CARATTERISTICHE DI ALTO
RISCHIO**

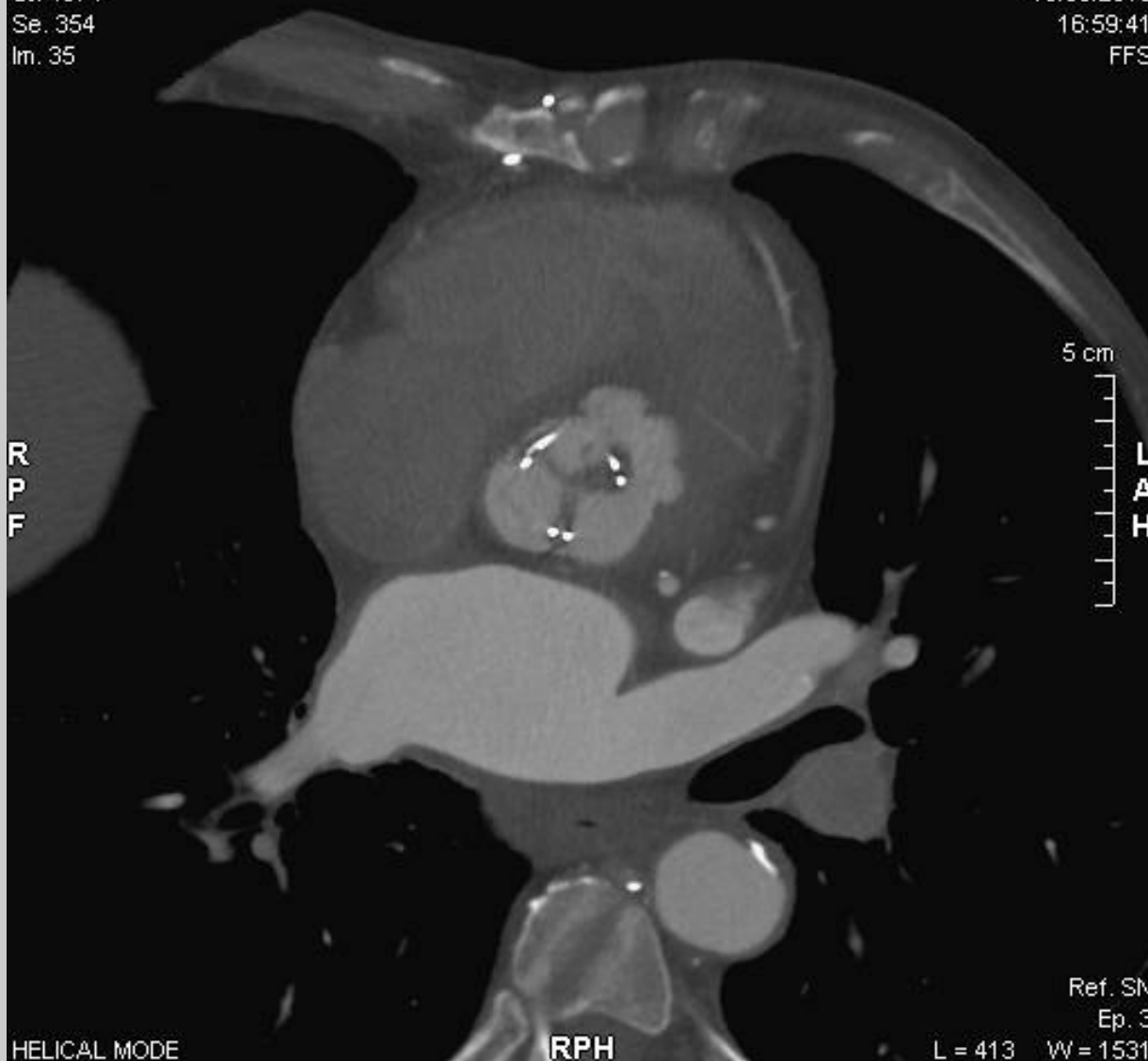
**CHE HANNO POCHE POSSIBILITA' DI ESSERE
CURATI DALLA SOLA TERAPIA ANTIBIOTICA**

**SENZA COMORBIDITA' O COMPLICAZIONI CHE
POSSANO IMPEDIRE LA GUARIGIONE**

EMILIO SILVANO SANTE
15/10/1946, 063Y
St. 4974
Se. 354
Im. 35

LAF

ASL TO2 OSP M VITTORIA
ID: 1005005
15/06/2010
16:59:41
FFS



HELICAL MODE

RPH

Ref. SN
Ep. 3
L = 413 W = 1531

PHILIPS

MASTROPASQUA, GIOVANNI

10/06/2010

13:17:07

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MI 0.9

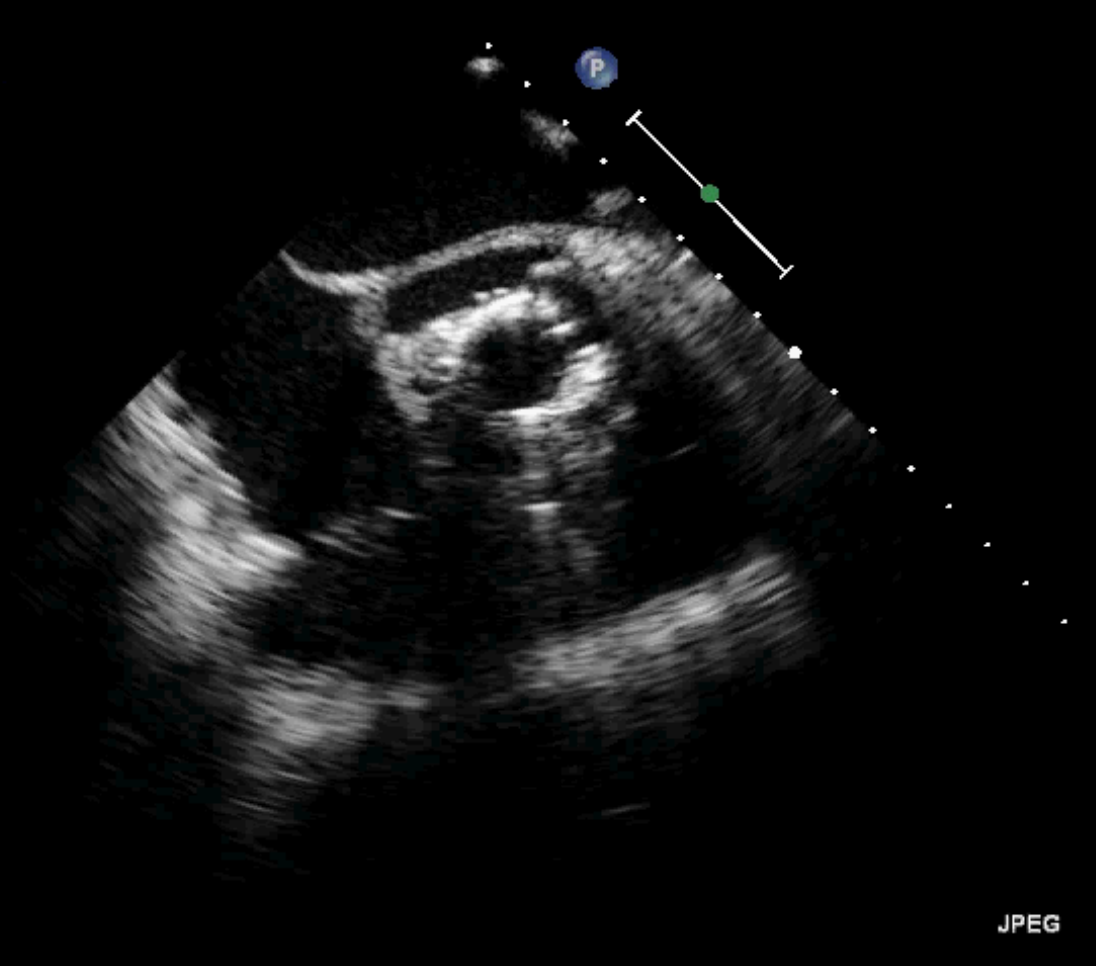
39431220100610

T6H/Adulti

FR 44Hz
16cm

M3

2D
46%
C 53
P Off
Gen



JPEG

85 bpm

PHILIPS

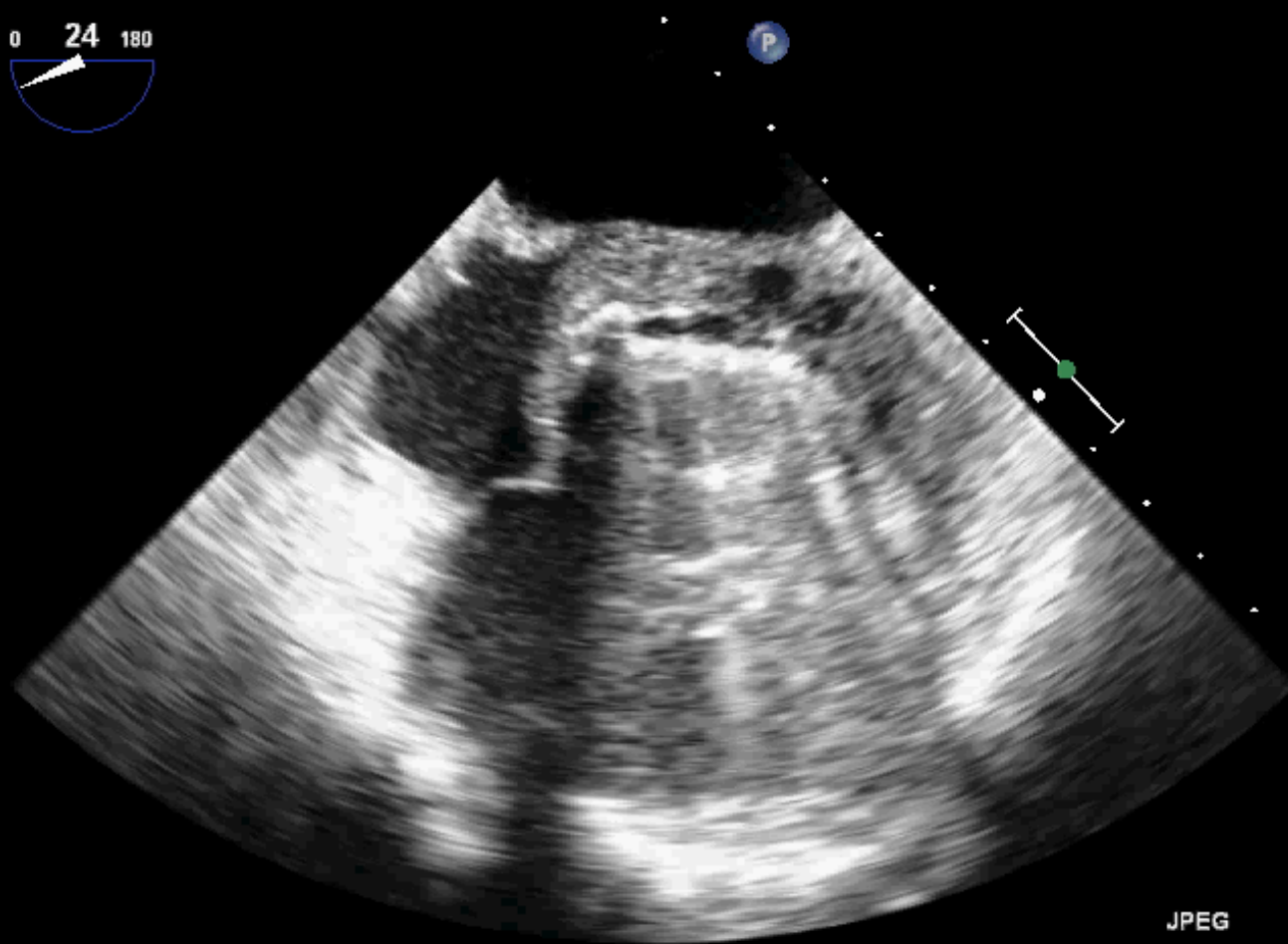
TISO.1 MI 0.5

CX7-2t/Adultl

FR 50Hz
12cm

M4

2D
77%
C 50
P Off
Gen.



Temp. PAZ.: 37.0C
Temp. TEE: 37.5C

JPEG

78 bpm

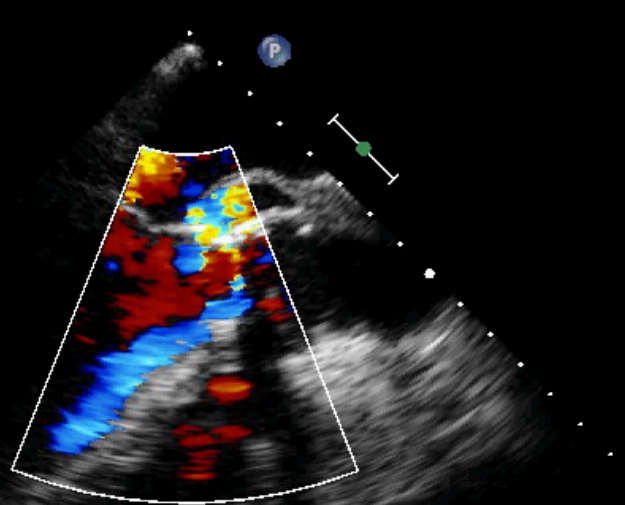
PHILIPS MASTROPASQUA, GIOVANNI 10/06/2010 13:15:03 TIS1.4 MI 0.7
39431220100610 T6H/Adulti

FR 17Hz
16cm

2D
52%
C 53
P Off
Gen
CF
70%
4.9MHz
WF Alto
Med.



G
P R



JPEG

87 bpm

LINEE-GUIDA ESC 2009

Recommendations: Indications for surgery	Timing*	Class ^a	Level ^b
A - HEART FAILURE			
Aortic or mitral IE with severe acute regurgitation or valve obstruction causing refractory pulmonary oedema or cardiogenic shock	Emergency	I	B
Aortic or mitral IE with fistula into a cardiac chamber or pericardium causing refractory pulmonary oedema or shock	Emergency	I	B
Aortic or mitral IE with severe acute regurgitation or valve obstruction and persisting heart failure or echocardiographic signs of poor haemodynamic tolerance (early mitral closure or pulmonary hypertension)	Urgent	I	B
Aortic or mitral IE with severe regurgitation and no HF	Elective	IIa	B

The Association Between Surgical Indications, Operative Risk and Clinical Outcome in Infective Endocarditis: A Prospective Study From the International Collaboration on Endocarditis

Running title: *Chu et al.; Use of surgery in infective endocarditis*

Vivian H. Chu, MD, MHS¹; Lawrence P. Park, PhD¹; Eugene Athan, MD²; Francois Delahaye, MD³; Tomas Freiburger, MD, PhD⁴; Cristiane Lamas, MD, MRCP, PhD⁵; Jose M. Miro, MD, PhD⁶; Daniel W. Mudrick, MD⁷; Jacob Strahilevitz, MD⁸; Christophe Tribouilloy, MD, PhD⁹; Emanuele Durante-Mangoni, MD, PhD¹⁰; Juan M. Pericas, MD⁶; Nuria Fernández-Hidalgo, MD, PhD¹¹; Francisco Nacinovich, MD¹²; Hussien Rizk, MD¹³; Vladimir Krajinovic, MD, PhD¹⁴; Efthymia Giannitsioti, MD¹⁵; John P. Hurley, MD, FRC¹⁶; Margaret M. Hannan, MD¹⁶; Andrew Wang, MD¹ for the ICE Investigators*

Circulation 2015

¹Duke University Medical Center, Durham, NC; ²Barwon Health and Deakin University, Geelong,

**1296 PAZIENTI CON EI SINISTRA
L'NTEGRAZIONE DI INDICAZIONE CHIRURGICA, STS SCORE E USO DI
CHIRURGIA ERANO ASSOCIATI A SOPRAVVIVENZA A 6 MESI**

Table 2. Indications and timing of cardiac surgery in IE.

	Overall N=863	Surgery N=661	No surgery N=202	OR [95% CI] p-value
Heart failure	303 (35.1)	258 (35.2)	58 (10.5)	4.63 [3.36, 6.43]
Embolic event	209 (24.2)	167 (22.8)	54 (9.8)	2.72 [1.94, 3.86]
Persistent bacteremia	98 (11.4)	68 (9.3)	40 (7.2)	1.31 [0.86, 2.02]
Abscess	159 (18.4)	137 (18.7)	34 (6.2)	3.5 [2.34, 5.35]
Severe valvular regurgitation	517 (59.9)	460 (62.8)	101 (18.3)	7.52 [5.74, 9.88]
Vegetation size	404 (46.8)	370 (50.5)	76 (13.8)	6.38 [4.78, 8.58]
Microorganism	115 (13.3)	82 (11.2)	37 (6.7)	1.75 [1.15, 2.71]
Timing of cardiac surgery				
Admission to surgical indication median days (25 th , 75 th % tile)	1 (0, 5)	0 (0, 4)	2.5 (0, 8)	<0.001
Admission to surgical consult median days (25 th , 75 th % tile)	1 (0, 6)	1 (0, 5)	4 (1, 10)	<0.001
Admission to surgery median days (25 th , 75 th % tile)		7 (2, 16)		

RIEI. 677 EI

INDICAZIONI CCH

SCC	89(41%)	Indicazione isolata 2 casi (0.8%)
Embolia sistemica	49 (23%)	1 casi (0.4%)
Batteriemia-febbre persistente	25 (11.6%)	0 casi
Ascesso endom.	38 (18%)	2 (0.8%)
Insufficienza valvolare	162 (76%)	16 casi (7.5%)
Dimensioni-mobilità veg.	135 (63%)	9 casi (4.2%)

IN REALTA' L'INTERVENTO PRECOCE E' RELATIVAMENTE SICURO

- IN MOLTE CASISTICHE
- **RISCHIO OPERATORIO MOLTO PIU' BASSO
PRIMA DI SCOMPENSO MANIFESTO
MORTALITA' OPERATORIA SENZA SC 6-11%
→ 17-33% CON SC**
- MIGLIORI RISULTATI CON INTERVENTO
PRECOCE ENTRO 1 SETTIMANA

Bayer AS. Circulation 1998; 98:2936
Croft CH. Am J Cardiol 1983;51:1650
Sexton DJ. Clin Cardiol 2003;21:273

CASO CLINICO

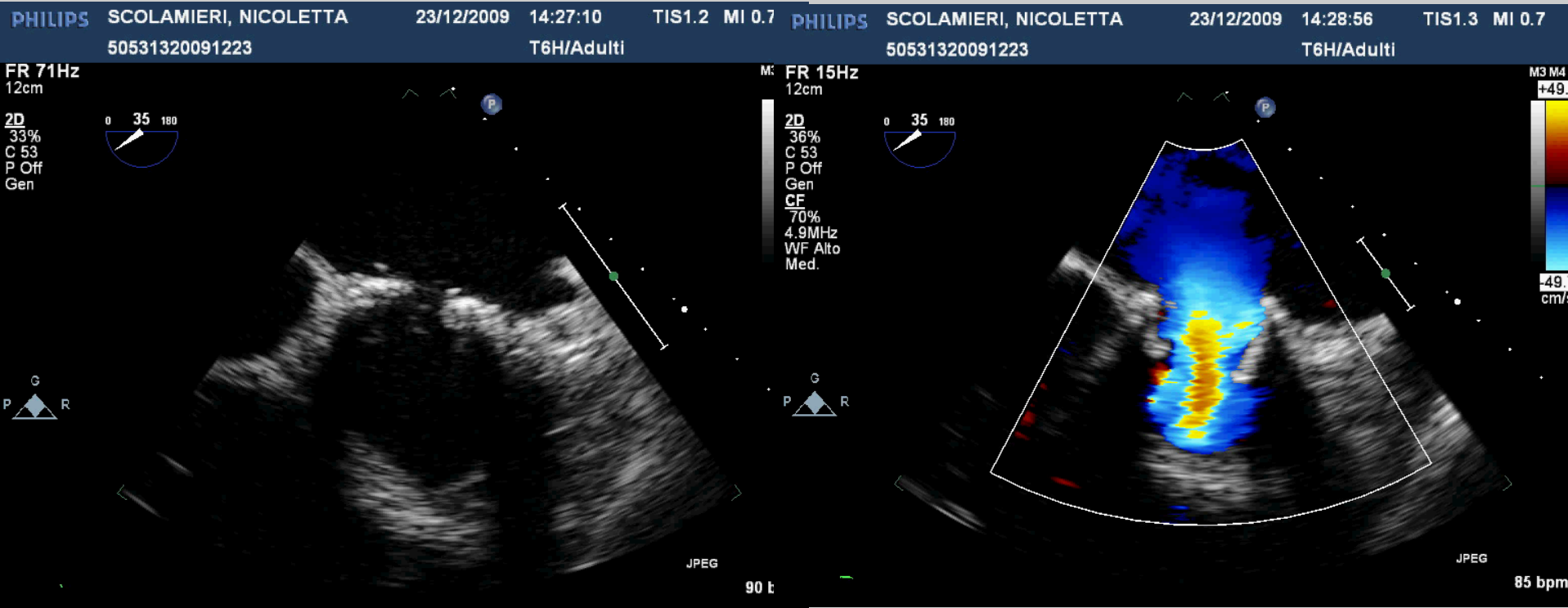
- **C.G. MASCHIO , 69 ANNI**
- **NON PRECEDENTI CV**
- **FEBBRE DA UN MESE. ACCERTAMENTI NEGATIVI PER FOCOLAIO. TERAPIA ANTIBIOTICA EMPIRICA.**
- **RICOVERO PER RIPRESA IPERPIRESSIA**
- **EMOCOLTURE POSITIVE PER STAFILOCOCCO AUREO**

ECOCARDIO



- **CORONARIE SANE**
- **INTERVENTO DI SVM BIOPROTESI**
- **DECORSO NON COMPLICATO**
- **COMPLETAMENTO DELLA TERAPIA ANTIBIOTICA E RIABILITAZIONE.**
- **NYHA 1 A SEI MESI.**

S.C.



B - UNCONTROLLED INFECTION

Locally uncontrolled infection (abscess, false aneurysm, fistula, enlarging vegetation)	Urgent	I	B
Persisting fever and positive blood cultures > 7–10 days	Urgent	I	B
Infection caused by fungi or multiresistant organisms	Urgent/elective	I	B

Impact of Early Valve Surgery on Outcome of *Staphylococcus aureus* Prosthetic Valve Infective Endocarditis: Analysis in the International Collaboration of Endocarditis–Prospective Cohort Study

Catherine Chirouze,^{1,2} François Alla,^{3,4,5} Vance G. Fowler Jr,⁶ Daniel J. Sexton,⁶ G. Ralph Corey,⁶ Vivian H. Chu,⁶ Andrew Wang,⁶ Marie-Line Erpelding,^{4,5} Emanuele Durante-Mangoni,⁷ Nuria Fernández-Hidalgo,⁸ Efthymia Giannitsioti,⁹ Margaret M. Hannan,¹⁰ Tatjana Lejko-Zupanc,¹¹ José M. Miró,¹² Patricia Muñoz,¹³ David R. Murdoch,¹⁴ Pierre Tattevin,¹⁵ Christophe Tribouilloy,¹⁶ and Bruno Hoen^{1,2,17,18}; on behalf of the ICE Prospective Investigators^a

¹UMR CNRS 6249 Chrono-Environnement, Université de Franche-Comté, and ²Service de Maladies Infectieuses et Tropicales, Centre Hospitalier Régional Universitaire, Besançon, ³Université de Lorraine, Université Paris Descartes, Apemac, EA4360, ⁴INSERM, CIC-EC, CIE6, and ⁵CHU Nancy, Pôle S2R, Epidémiologie et Evaluation Cliniques, Nancy, France; ⁶Department of Medicine, Duke University Medical Center, Durham, North Carolina; ⁷Department of Cardiothoracic Sciences, University of Naples S.U.N., Monaldi Hospital, Italy; ⁸Servei de Malalties Infeccioses, Hospital Universitari Vall d'Hebron, Universitat Autònoma de Barcelona, Spain; ⁹Fourth Department of Internal Medicine, Attikon University General Hospital, Athens, Greece; ¹⁰Department of Microbiology, Mater Misericordiae University Hospital, Dublin, Ireland; ¹¹Department of Infectious Diseases, Medical Centre Ljubljana, Slovenia; ¹²Hospital Clinic-IDIBAPS, University of Barcelona, and ¹³Servicio de Microbiología Clínica y Enfermedades Infecciosas, Hospital General Universitario Gregorio Marañón, Madrid, Spain; ¹⁴Microbiology Unit, Canterbury Health Laboratories, Christchurch, New Zealand; ¹⁵Maladies Infectieuses et Réanimation Médicale, Pontchaillou University Hospital, Rennes, ¹⁶Département de Cardiologie, Hôpital Universitaire Sud, Amiens, ¹⁷Université des Antilles et de la Guyane, Faculté de Médecine Hyacinthe Bastaraud, EA 4537, Pointe-à-Pitre, Guadeloupe, and ¹⁸Service de Maladies Infectieuses et Tropicales, CIC 1424, Centre Hospitalier Universitaire, Pointe-à-Pitre, France

Table 4. Prognostic Multivariate Model Adjusted on Age, Sex, Stroke, Heart Failure, Paravalvular Complications, and Early Valve Surgery—Endpoint: 1-Year Mortality

Variable	RR	95% CI	P Value
Age (per 1-year increment)	1.03	1.01–1.05	.002
Female sex	1.43	.91–2.40	.12
Stroke (time-dependent)	2.54	1.58–4.09	<.0001
Cardiac failure (NYHA class III or IV)	2.02	1.25–3.26	.004
Paravalvular complications	1.20	.74–1.96	.46
Early valve surgery (time-dependent)	0.67	.39–1.15	.15

Model is based on 150 patients, after exclusion of 18 cases due to missing data.
Abbreviations: CI, confidence interval; NYHA, New York Heart Association; RR, risk ratio.

Table 5. Prognostic Multivariate Model Adjusted on Age, Sex, Stroke, Heart Failure, Paravalvular Complications, and Early Valve Surgery (Partitioned)—Endpoint: 1-Year Mortality

Variable	RR	95% CI	<i>P</i> Value
Age (per 1-year increment)	1.03	1.01–1.05	.002
Female sex	1.44	.92–2.26	.11
Stroke (time-dependent)	2.53	1.57–4.08	<.0001
Cardiac failure (NYHA class III or IV)	2.05	1.27–3.32	.003
Paravalvular complications	1.23	.75–2.01	.41
EVS (time-dependent, partitioned, D0–D7)	1.34	.59–3.02	.49
EVS (time-dependent, partitioned, D8–D365)	0.52	.28–.96	.04

C - PREVENTION OF EMBOLISM

Aortic or mitral IE with large vegetations (> 10 mm) following one or more embolic episodes despite appropriate antibiotic therapy	Urgent	I	B
Aortic or mitral IE with large vegetations (> 10 mm) and other predictors of complicated course (heart failure, persistent infection, abscess)	Urgent	I	C
Isolated very large vegetations (> 15 mm) [#]	Urgent	IIb	C

The Relationship between the Initiation of Antimicrobial Therapy and the Incidence of Stroke in Infective Endocarditis: An Analysis from the ICE-PCS Study. Dickerman SA. Am Heart J 2007.

Fig.1 Daily Incidence of Stroke in ICE Cohort

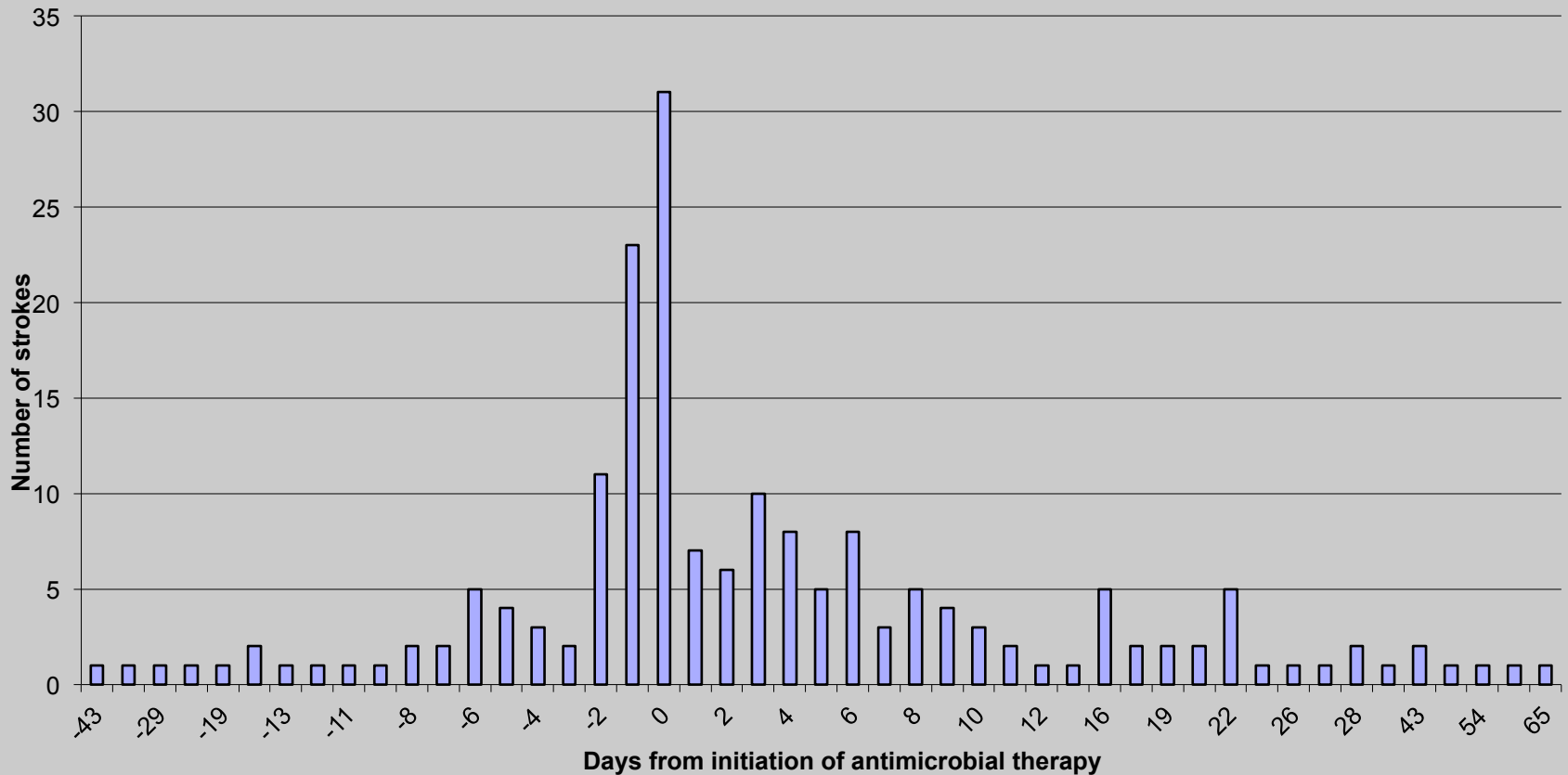


Fig.2 Stroke Rate After Initiation of Antimicrobial Therapy

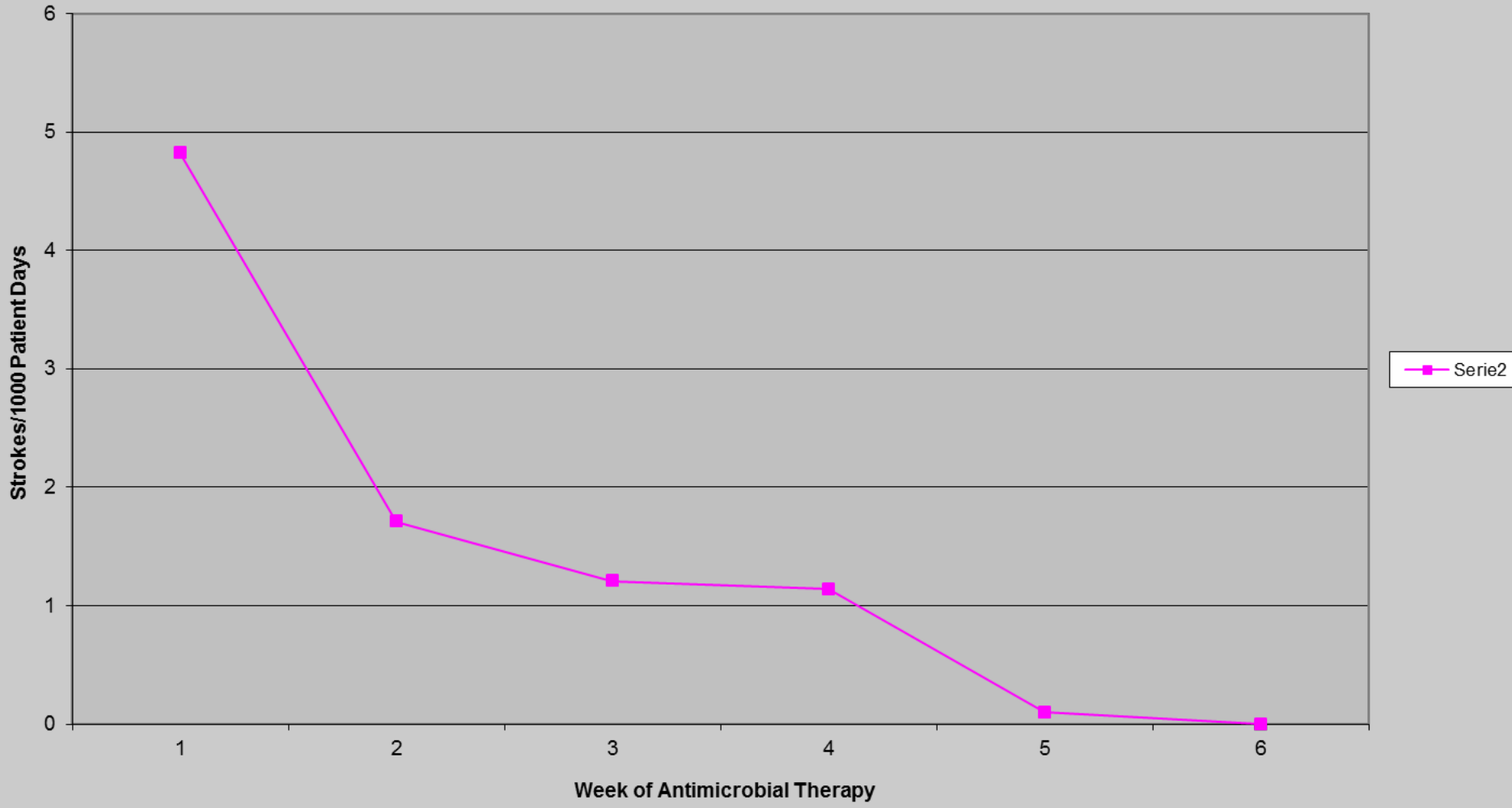


Table 5 Significant differences in patient characteristics by propensity subgroups (quintiles)

	Propensity groups (stratified into quintiles)					P for trend
	Q1 (n = 59)	Q2 (n = 57)	Q3 (n = 59)	Q4 (n = 58)	Q5 (n = 58)	
Age (mean ± SD, years)	62 ± 12	58 ± 14	58 ± 16	56 ± 16	48 ± 17	<0.0001
<i>Staphylococcus aureus</i>	3 (5)	8 (14)	8 (14)	10 (17)	19 (33)	<0.0001
CHF	15 (25)	28 (49)	25 (42)	24 (41)	30 (52)	0.027
Vegetation length (median, [interquartile range], mm)	9 (3–15)	10 (0–15)	11 (4–18)	15 (6–20)	16 (10–19)	0.006
Vegetation length > 10 mm	27 (46)	26 (46)	31 (53)	36 (62)	44 (76)	<0.0001
Vegetation length > 15 mm	12 (20)	13 (23)	18 (31)	26 (45)	29 (50)	<0.0001

Values are expressed as number (%). CHF, congestive heart failure.

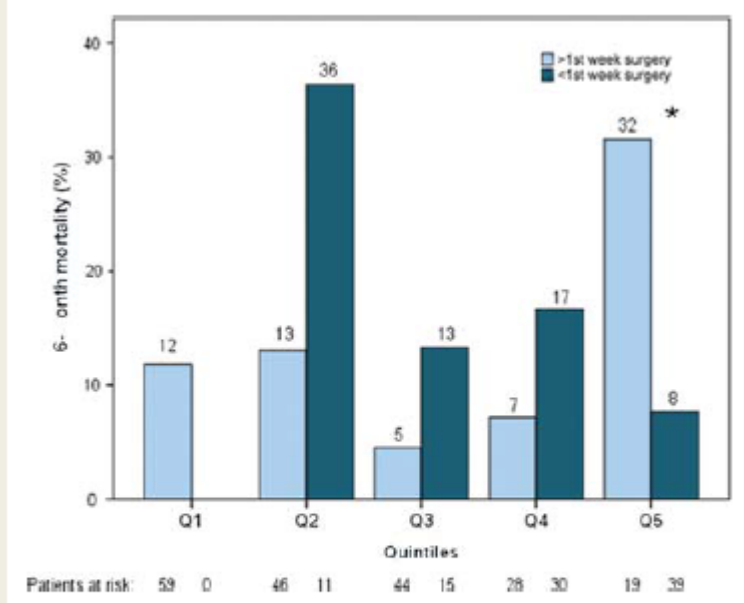


Figure 1 Six-month mortality according to propensity subgroups (Q = quintile). *In quintile 5, ≤1st week surgery was associated with reduced 6-month mortality (odds ratio = 0.18; 95% CI 0.04–0.83; P = 0.03). Values are expressed as number (%).

Thuny, Eur Heart J 2011

CASO CLINICO. R.A. 66 ANNI.

- **NON PRECEDENTI CV**
- **FEBBRE DA PIU' DI UN MESE. NON TROVATE CAUSE. VARIA TERAPIA ANTIBIOTICA EMPIRICA.**
- **9/4 EMOCOLTURE + PER STREPTOCOCCHI**
- **10/4 ETT**

PHILIPS

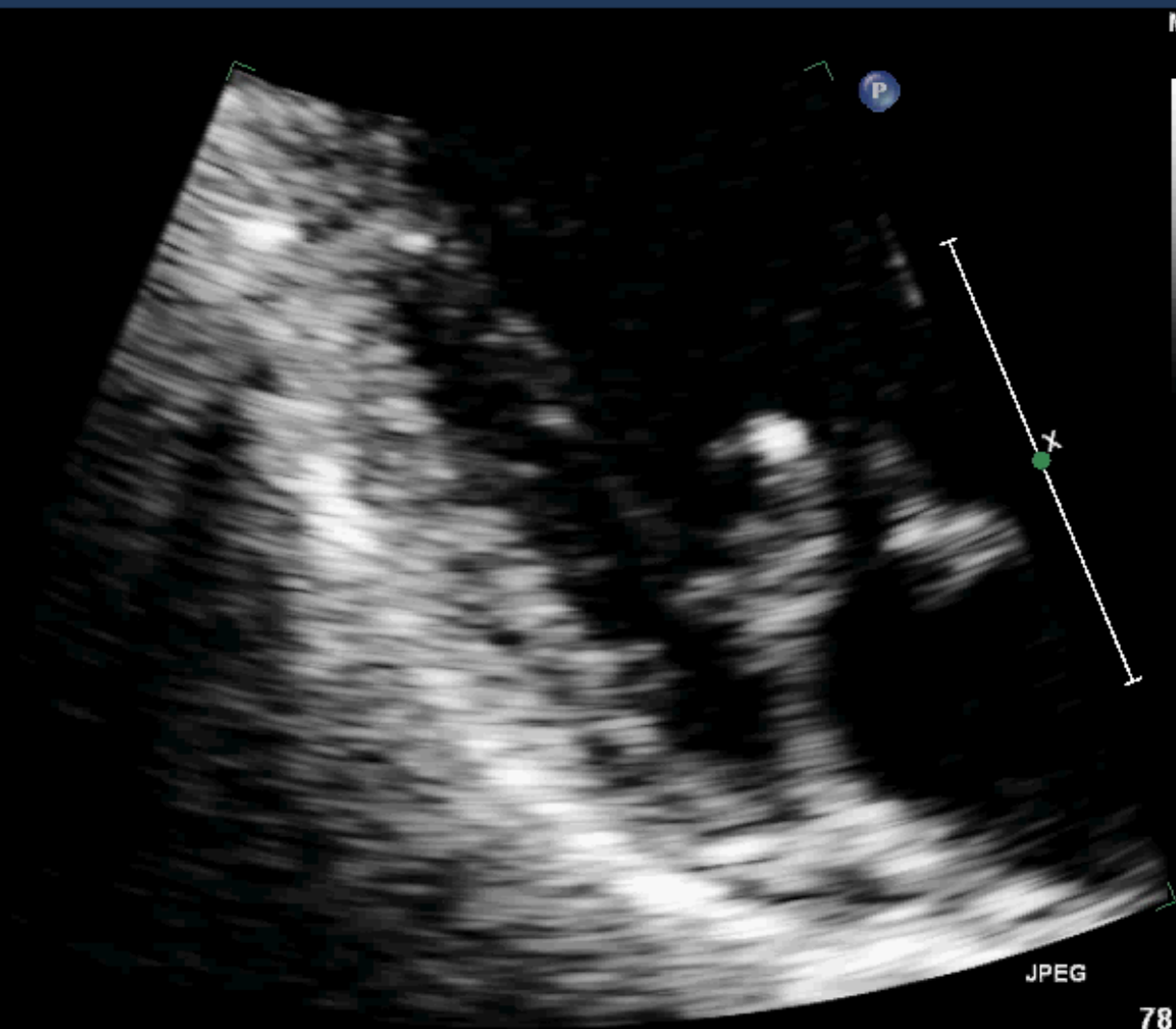
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S5-1/Adulti

M3

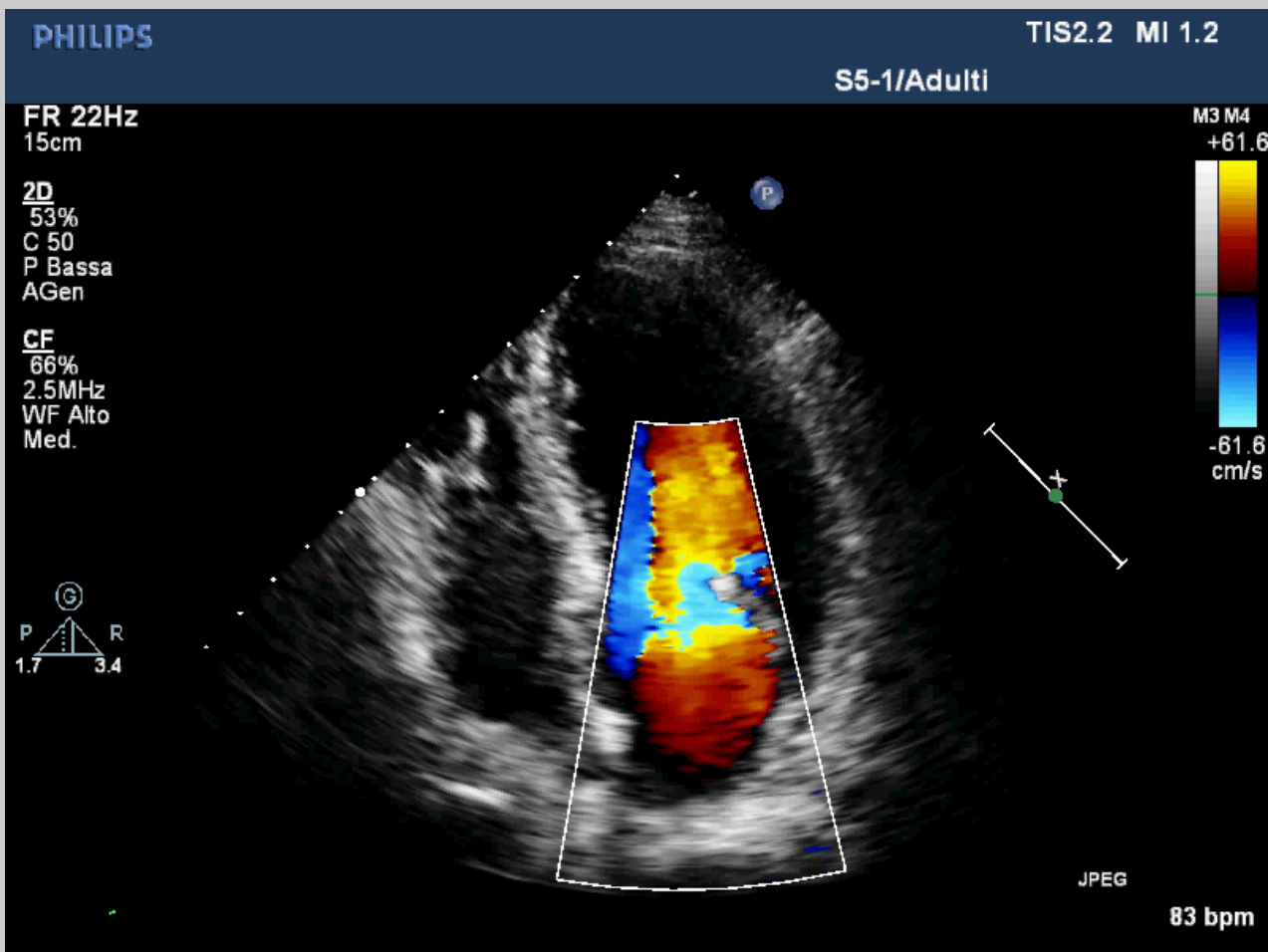
FR 101Hz
14cm

2D
54%
C 50
P Bassa
AGen



JPEG

78 bpm



13/4 EVENTO EMBOLICO PIEDE DESTRO
13/4 SVM CON BIOPROTESI
DECORSO FINORA NON COMPLICATO

RIEI

Fig. 1 Flow diagram of patients selection process[\[a.c.1\]](#)

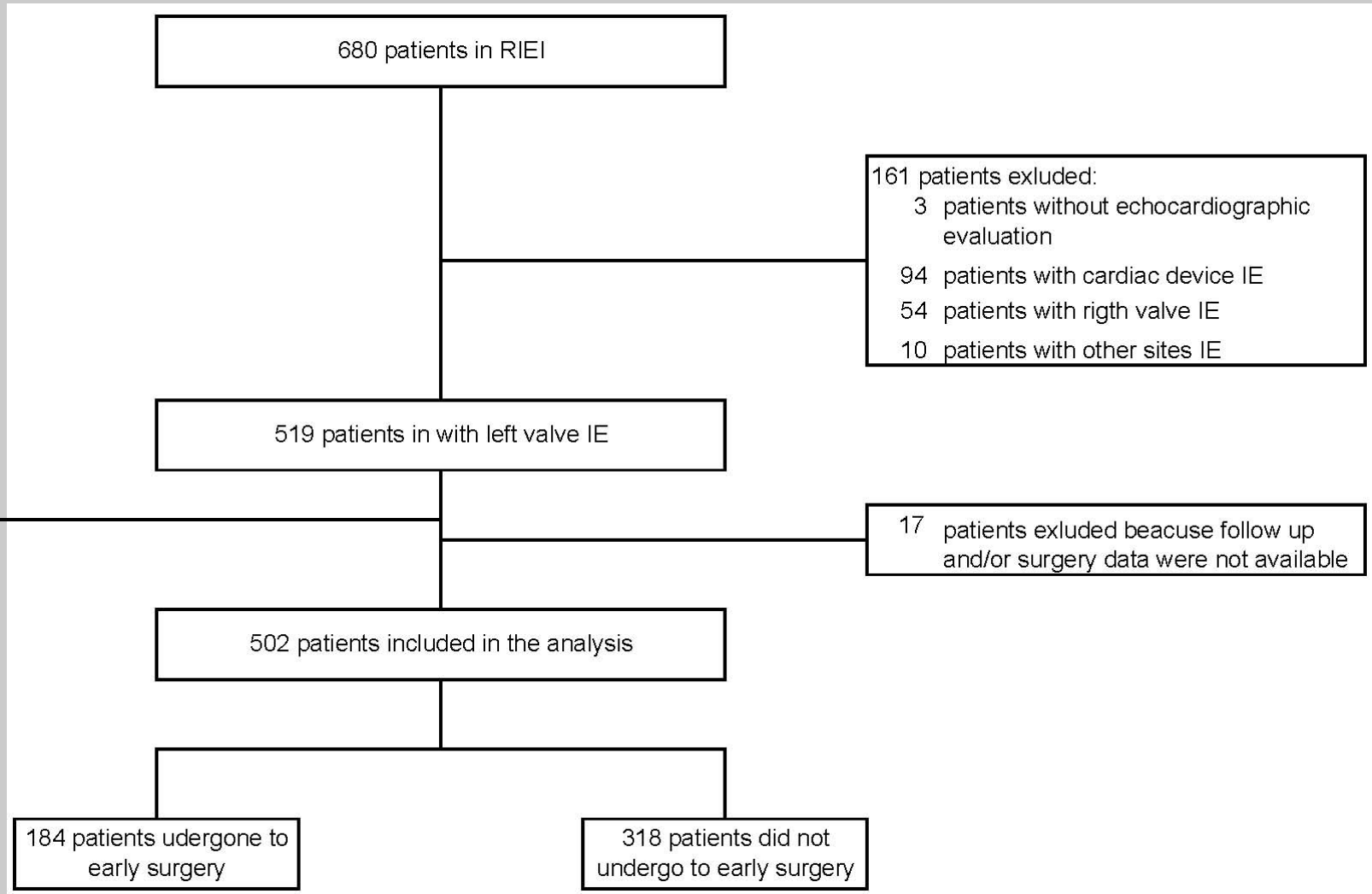


Fig. 2 Cumulative incidence of surgery

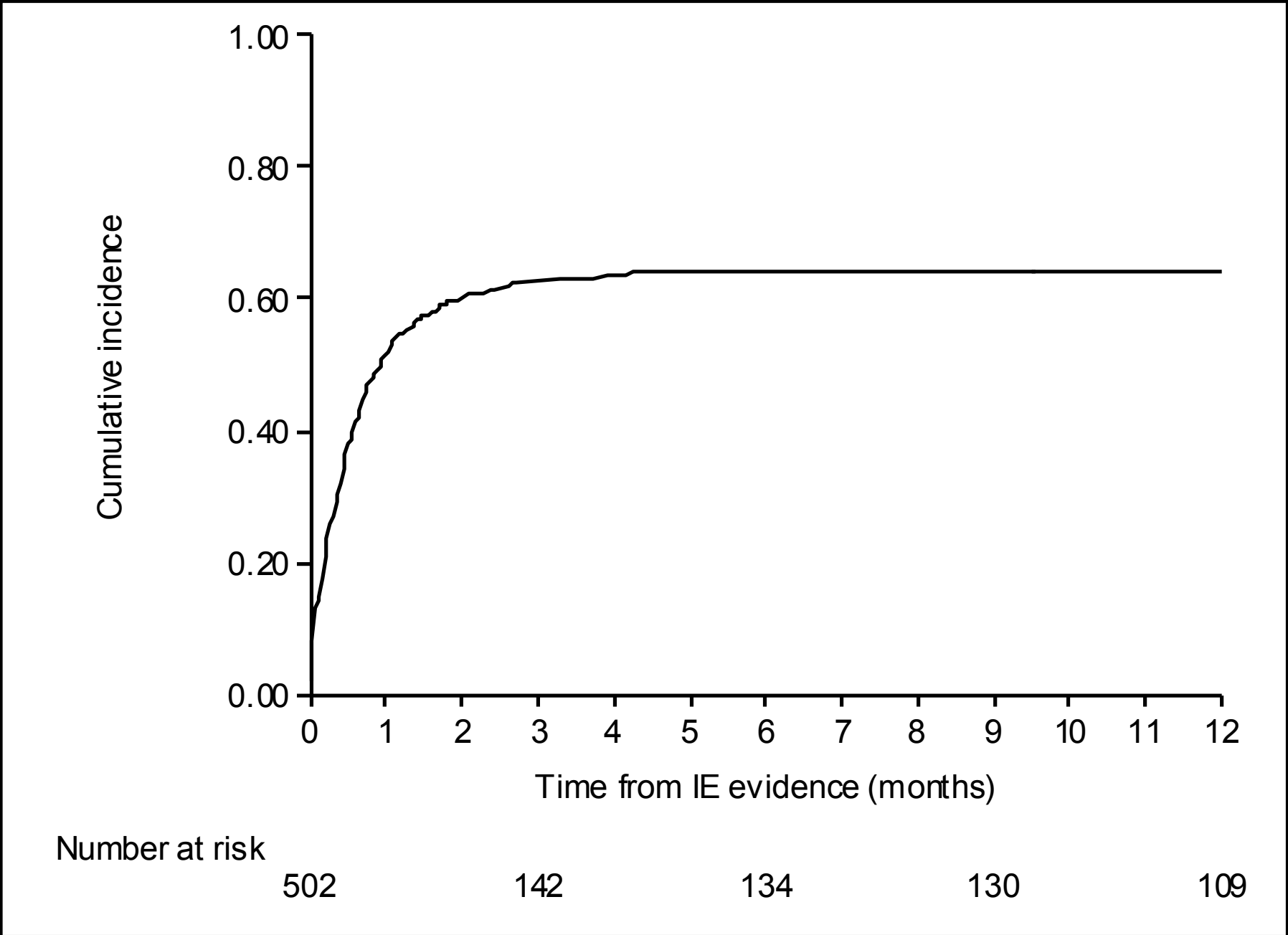


Table 4 Crude and adjusted effect on overall survival (early surgery)

	Crude effect			Adjusted effect		
	HR	95%CI	p	HR	95%CI	p
Surgery (time dependent)	0.61	[0.18,1.99]	0.408	0.64	[0.19,2.14]	0.467
Surgery	0.68	[0.42,1.09]	0.110			
Age at IE evidence						
<=50	1		.	1		.
51-60	0.91	[0.30,2.78]	0.868	0.87	[0.28,2.68]	0.804
60-70	2.77	[1.23,6.22]	0.014	2.34	[1.02,5.35]	0.045
70-80	3.63	[1.68,7.86]	0.001	2.84	[1.26,6.41]	0.012
>80	7.53	[3.25,17.46]	0	4.14	[1.69,10.16]	0.002

CONCLUSIONE: STUDIO EARLY

- **PROSPETTICO RANDOMIZZATO
MULTICENTRICO**
- **CENTRATO SU**

INSUFFICIENZE VALVOLARI SEVERE SENZA SCOMPENSO

VEGETAZIONI > 10 MM ISOLATE +/- INSUFFICIENZA SEVERA

EI PRECOCE DA SA SU PROTESI VALVOLARE