

# Perché...solo le donne soffrono ` ` The broken Heart syndrome` `??

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Cardiocentro Ticino Lugano  
Switzerland



Associated Institute  
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University of  
Zurich<sup>UZH</sup>

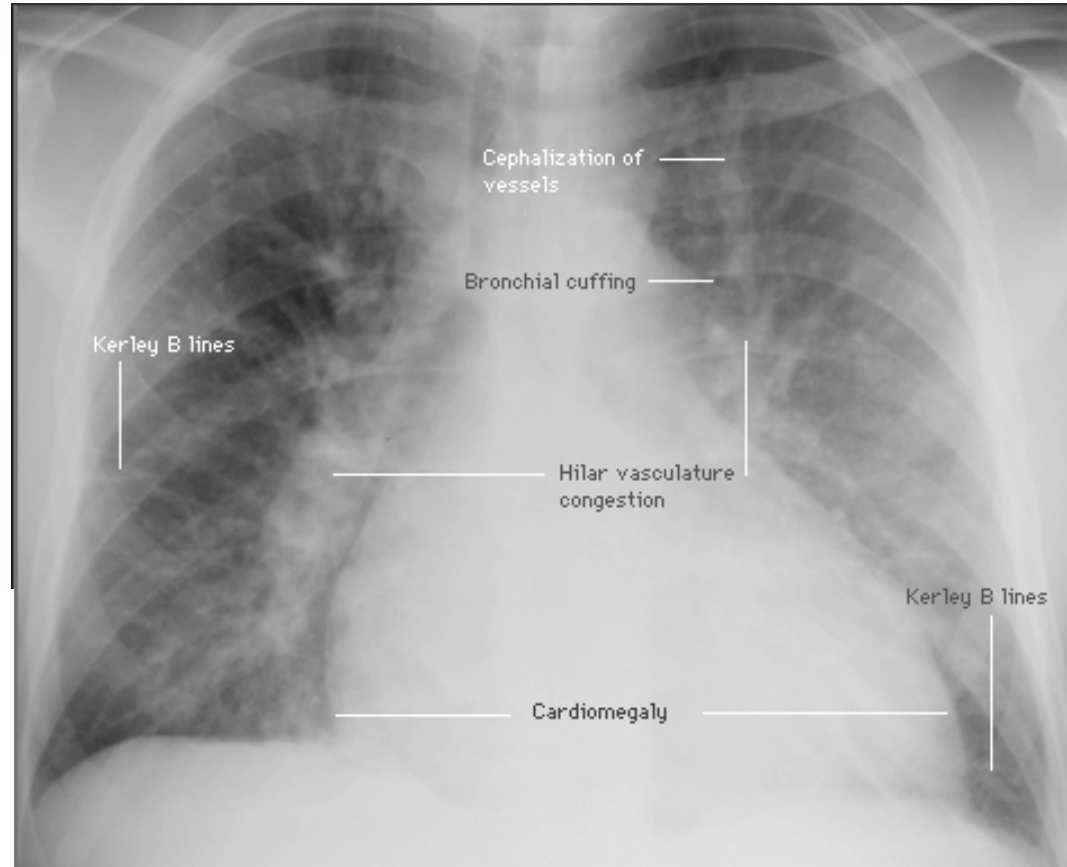
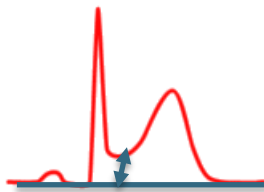
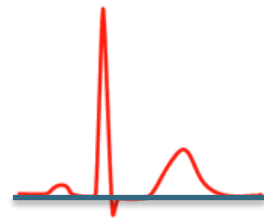
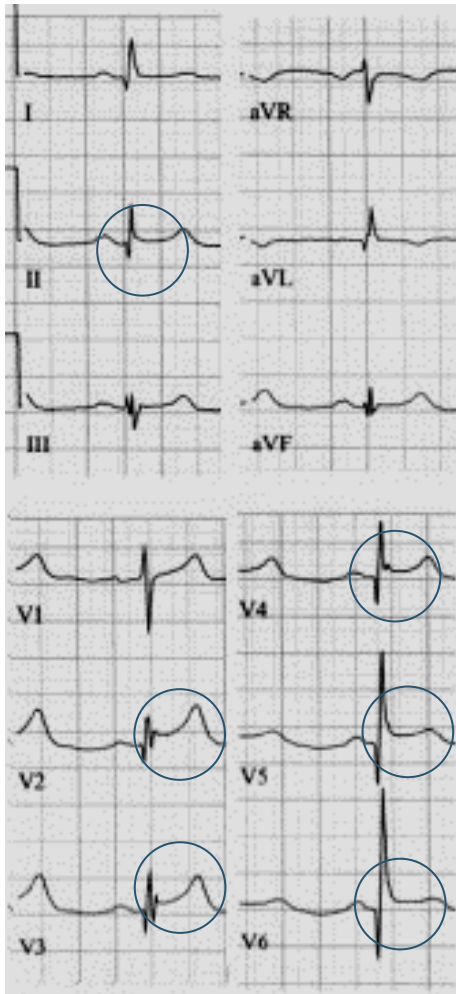


# Storia.

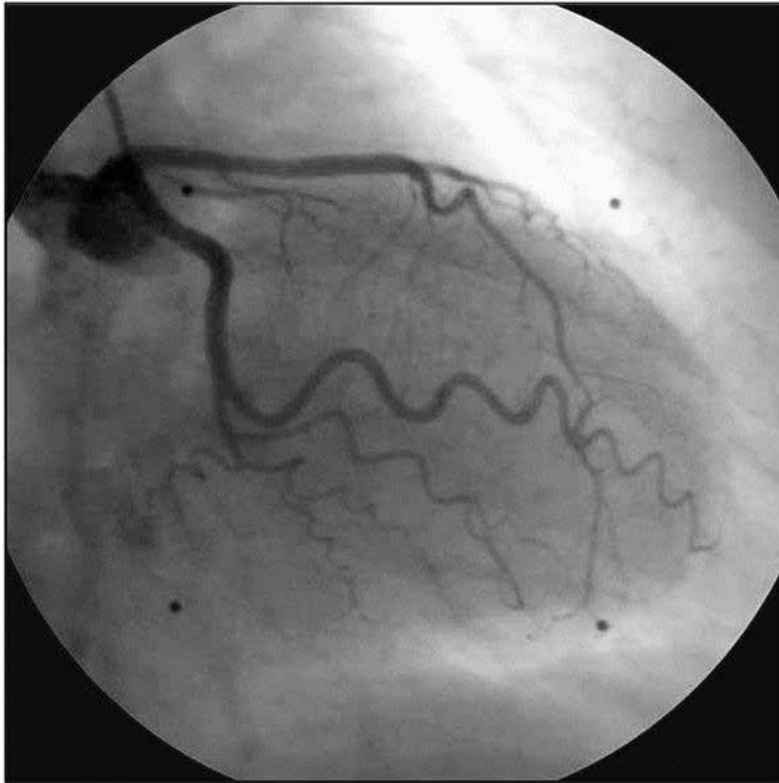
- Ø Una Paziente 57 anni.
- Ø Diabete non insulino dipendente.
- Ø Adesso dolore precordiale e dispnea dopo un litigio con la suocera.



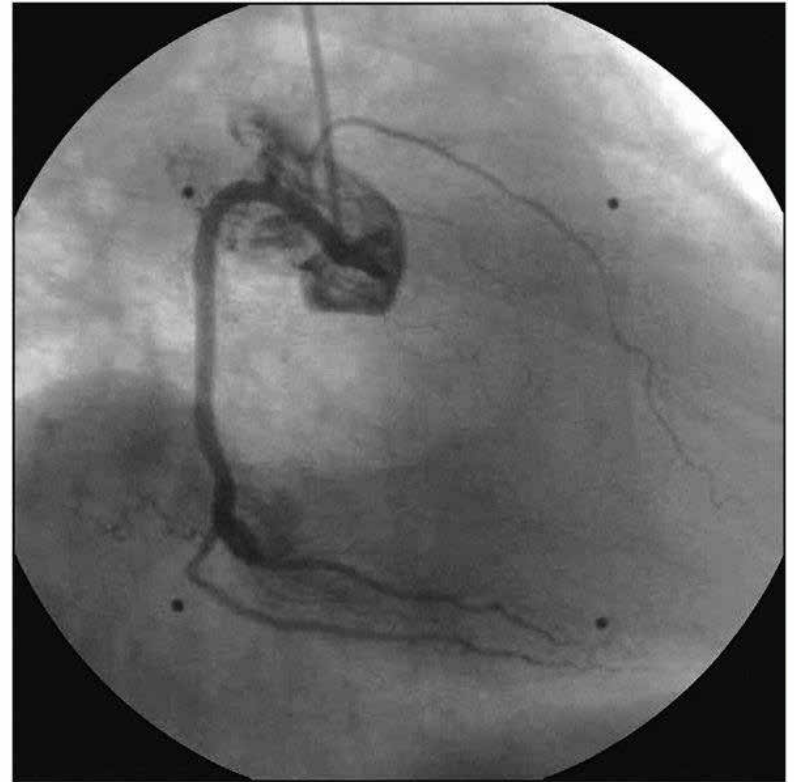
# ECG + Radiografia giorno del ricovero.



# Coronarografia.

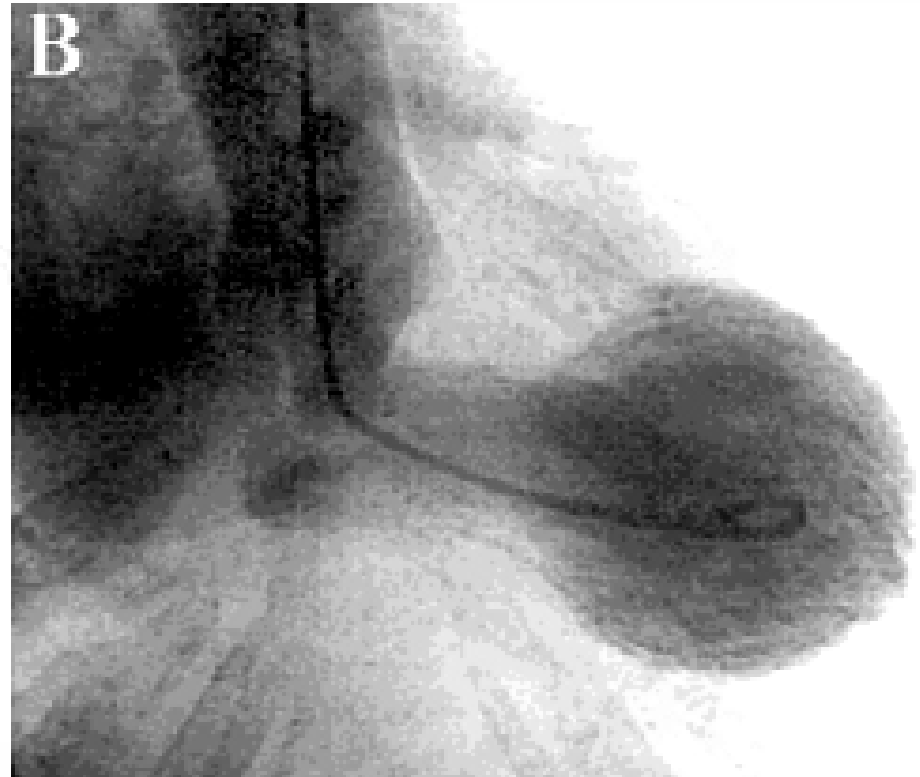
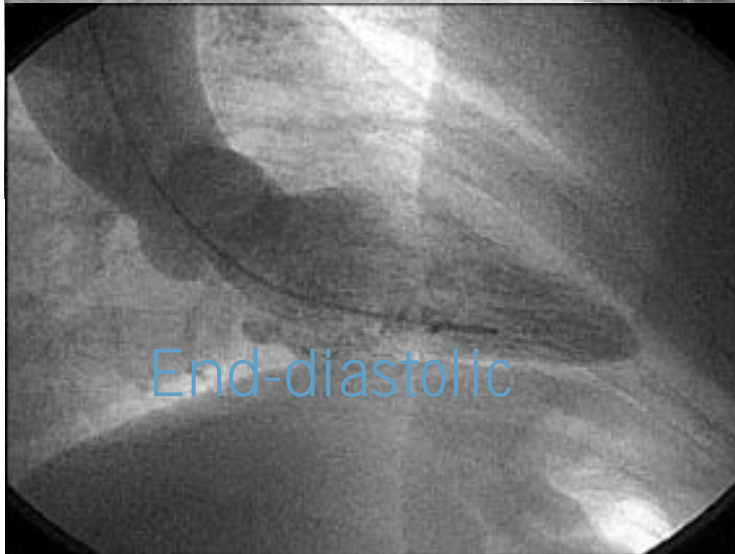
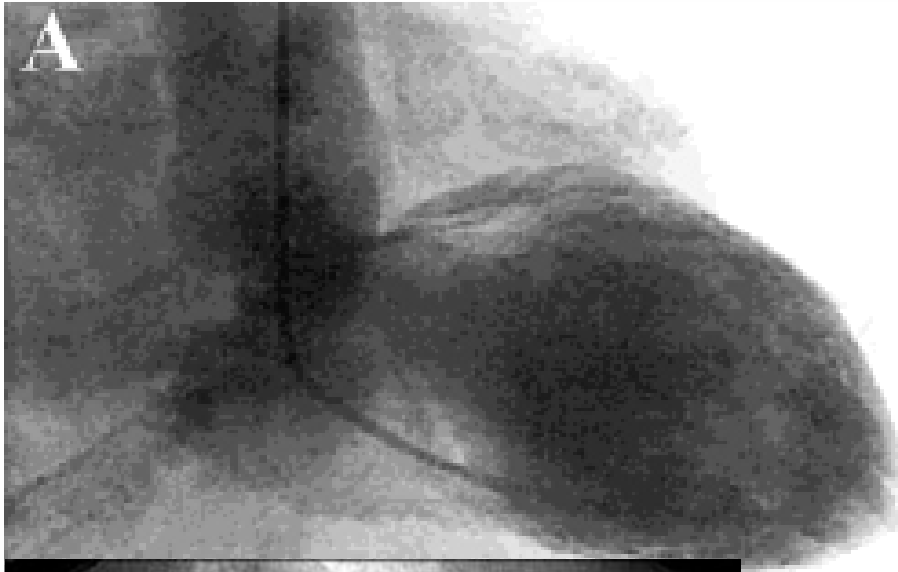


LCA



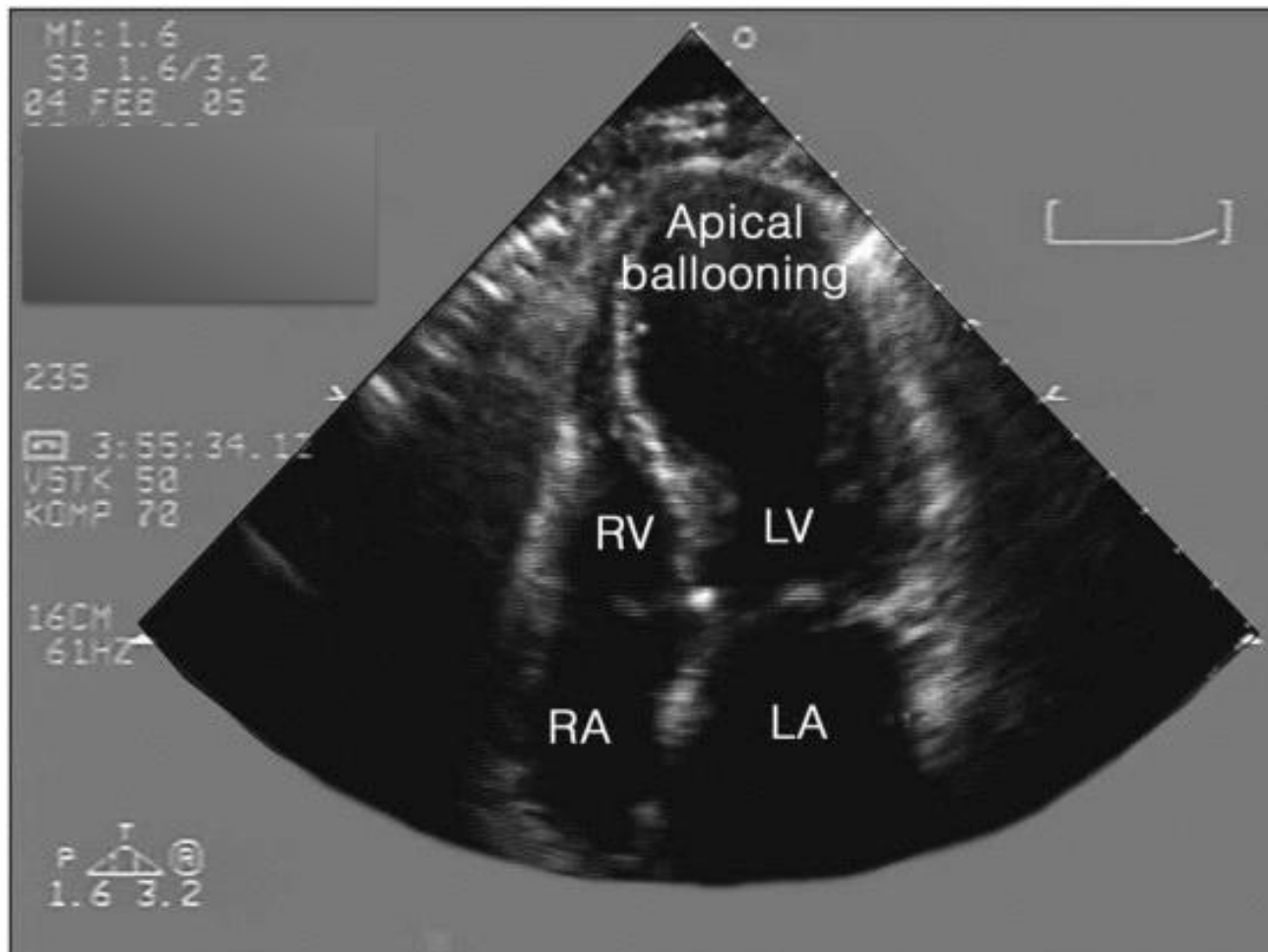
RCA

# La ventriculografía.

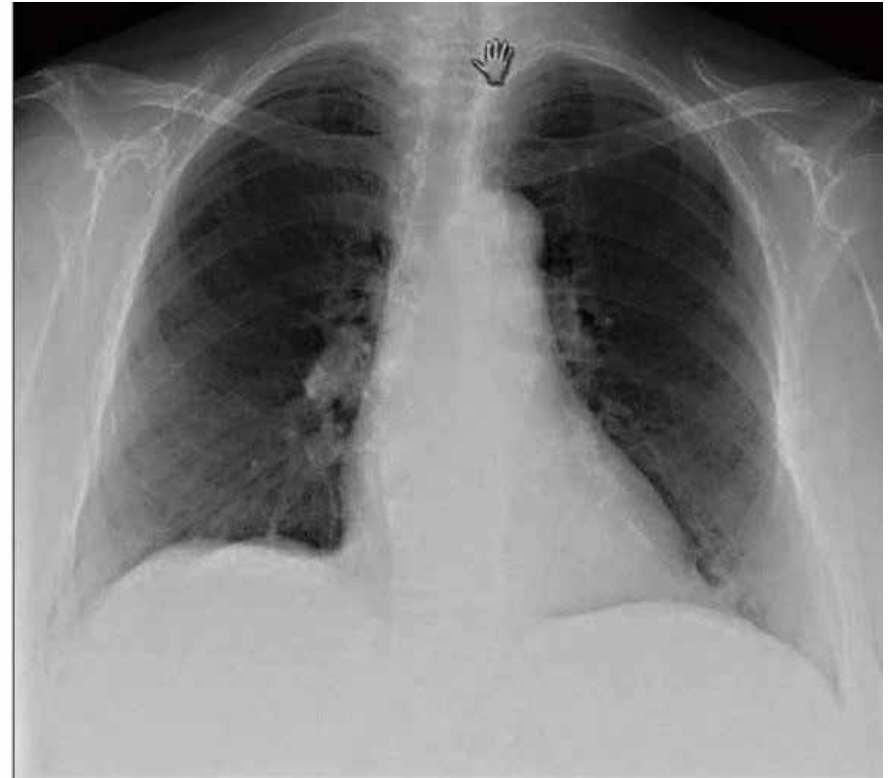
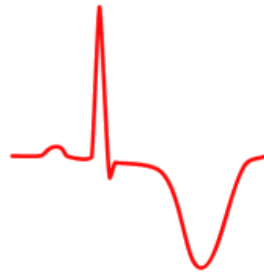
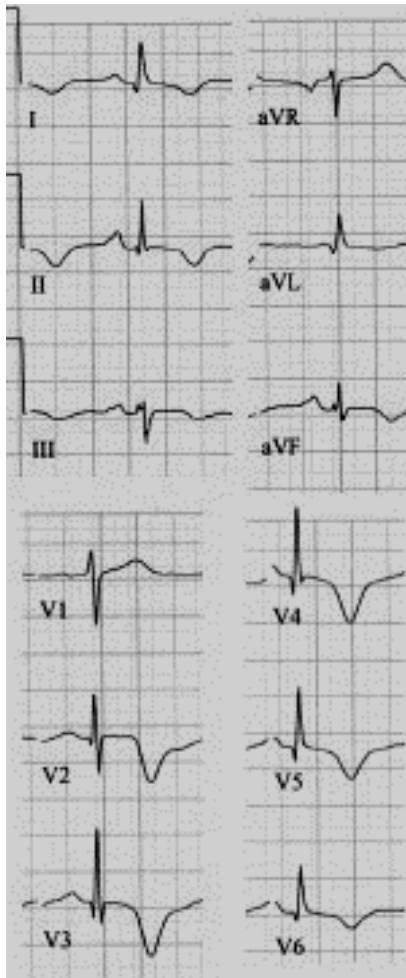


End-sistolic

# L'ecocardiografia transtoracica.

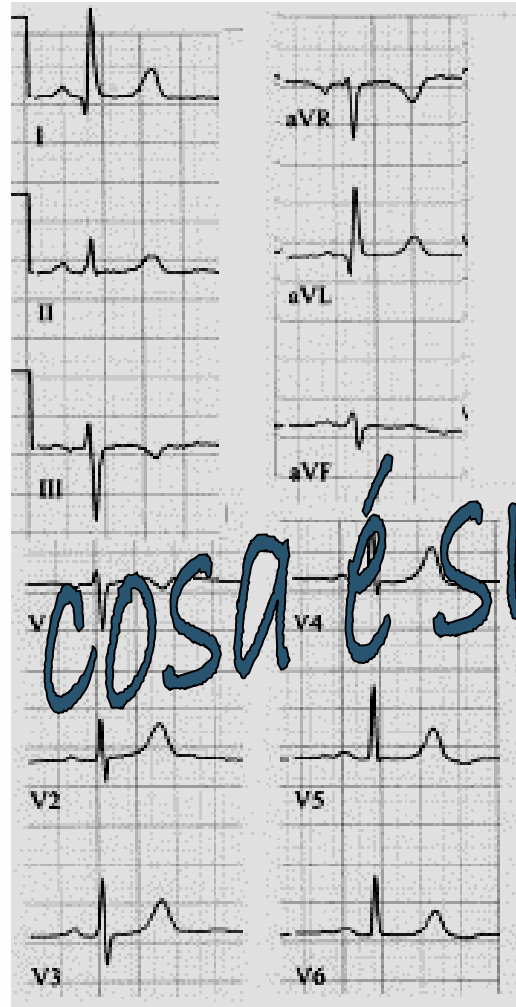
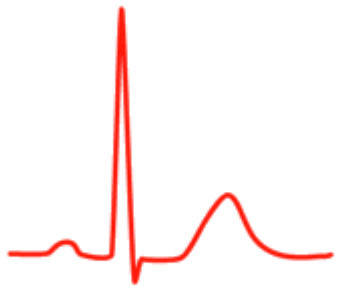


# ECG + Radiografia il giorno dopo.



Rialzo enzimatico limitato (non proporzionato all'estensione dell'acinesia)

# ECG dopo 3 settimane.



che cosa è successo?



# Tako-tsubo cardiomiopatia.

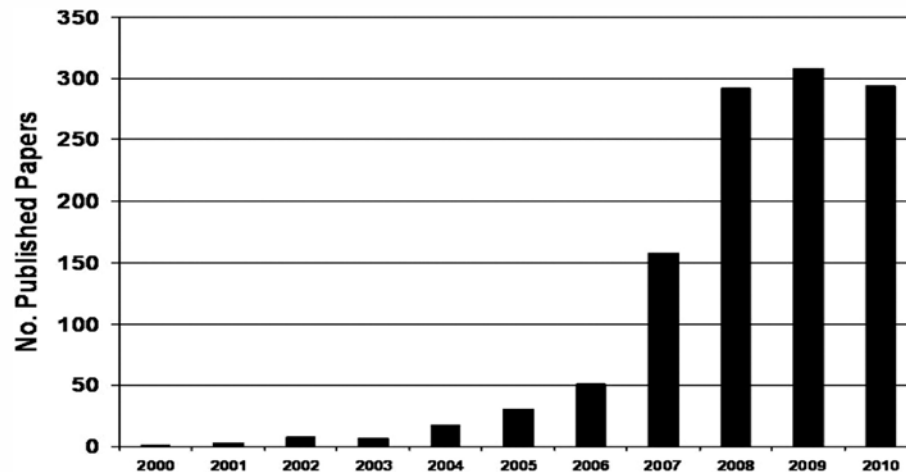
Tako...che cosa?



# Tako-tsubo una nuova malattia ?

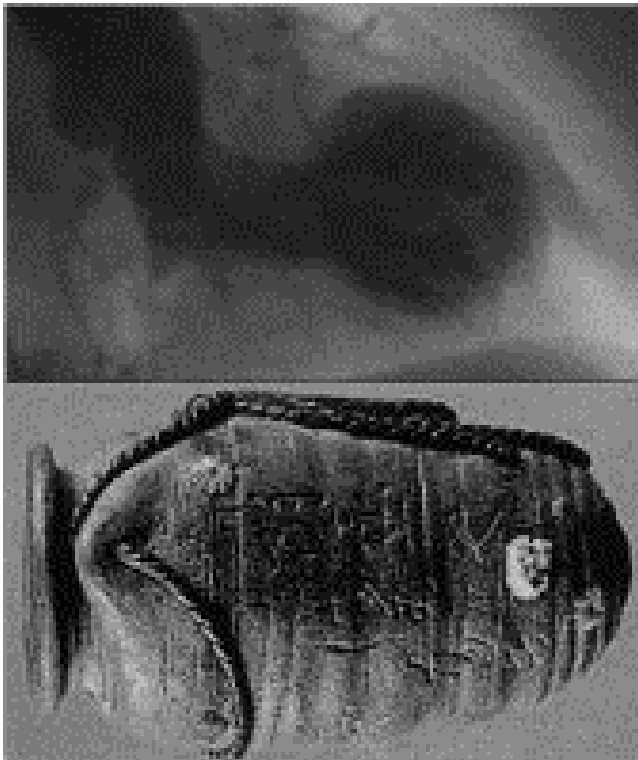
Descritta già nel 1990 in pazienti Giapponesi (Sato)

Prima descrizione in soggetti caucasici nel 2003 (Desmet)



# Tako-tsubo cardiomiopatia.

Nuova cardiopatia descritta solo negli ultimi 27 anni, che deve il suo strano nome al tipico aspetto che assume il ventricolo sinistro (acinesia apicale con ipercinesia dei segmenti basali), simile all'antico vaso utilizzato dai pescatori giapponesi per la raccolta del polipo.



# Tako-tsubo cardiomiopatia.

Sindrome di Takotsubo,  
ovvero disfunzione sistolica  
regionale (acuta) del  
ventricolo sinistro,  
correlata a stress psico-fisico.  
generalmente reversibile.



# Tako-tsubo cardiomiopatia.

Stress cardiomyopathy.

Stress induced cardiomyopathy.

Neurogenic myocardial stunning.

Transient left ventricular apical ballooning.

Ampulla cardiomyopathy.

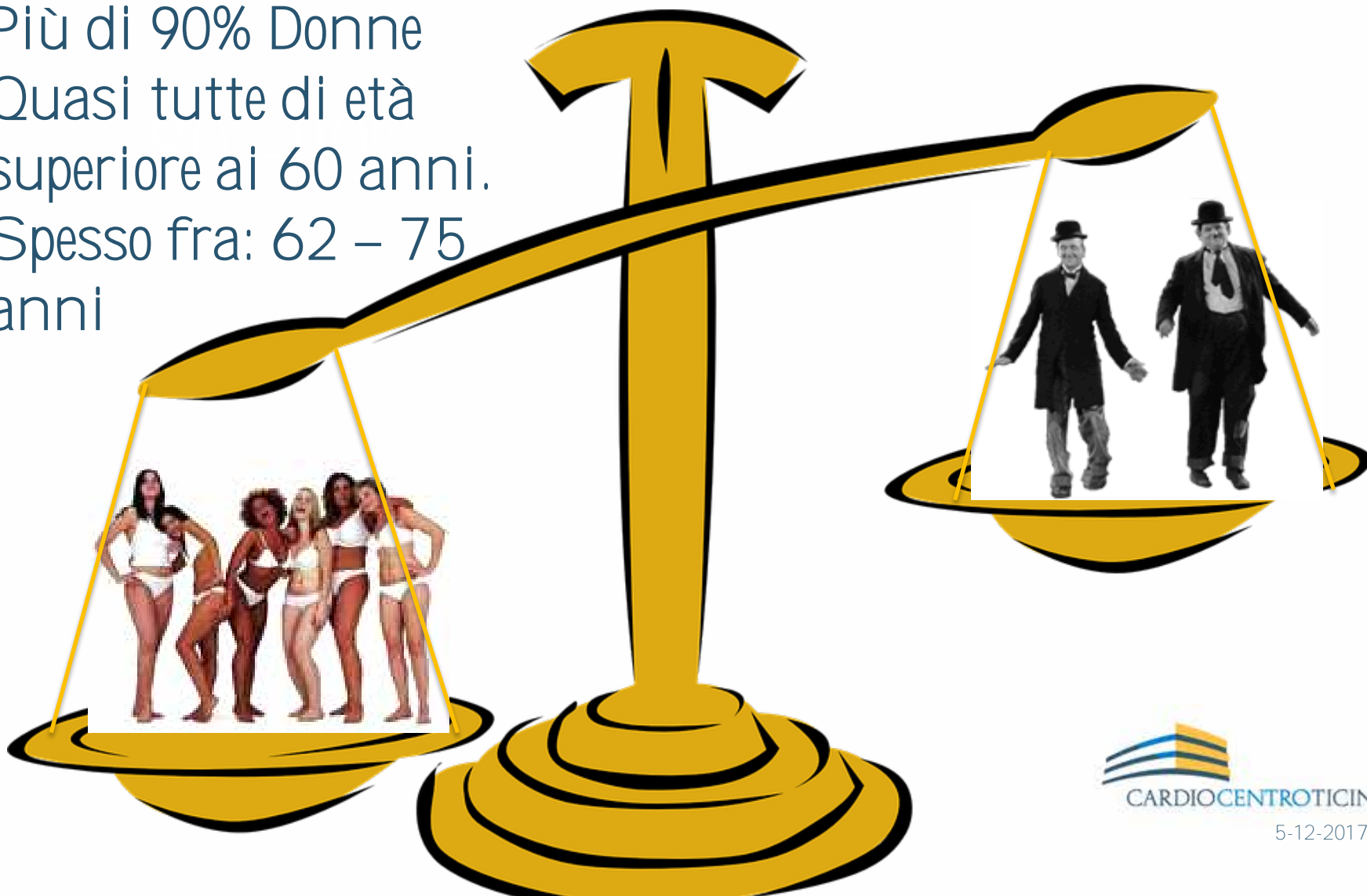
Broken heart syndrome.

Cardiomiopatia acuta reversibile da stress  
nelle donne.



# Prevalenza.

Più di 90% Donne  
Quasi tutte di età  
superiore ai 60 anni.  
Spesso fra: 62 – 75  
anni



# Prevalenza Tako-tsubo cmp.

Preponderante prevalenza nelle donne dopo la menopausa. (media fra 62 – 75 anni.)

L'incidenza maggiore nel sesso femminile suggerisce una sensibilità biologica alla disfunzione miocardica causata da stress, ma il fondamento di tale predisposizione rimane ancora sconosciuto.



# COME SI MANIFESTA?

Dolore toracico	(67.8%)
Edema polmonare	(3-46%)
Dispnea	(17.8%)
Shock cardiogeno	(4.2%)
Fibrillazione ventricolare	(1.5%)



La durata dei sintomi prima del ricovero e dell'ecocardiogramma può essere da meno di un'ora a due giorni





# Chronobiological Patterns of Onset of Tako-Tsubo Cardiomyopathy A Multicenter Italian Study

## Chronobiological Patterns of Onset of Tako-Tsubo Cardiomyopathy: A Multicenter Italian Study

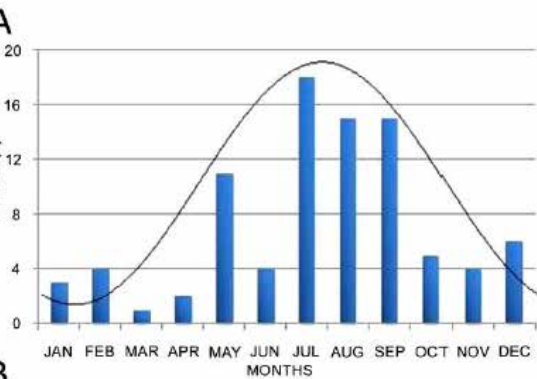
Rodolfo Citro, Mario Previtali, Daniella Bovelli, Olga Vríz, Costantino Astarita, Marco Mariano Patella, Gennaro Provenza, Corinna Armentano, Quirino Ciampi, Giovanni Gregorio, Massimo Piepoli, **Edoardo Rosone**, and Roberto Manfredini  
*J. Am. Coll. Cardiol.* 2009; 44:180-181  
 doi:10.1016/j.jacc.2009.03.048



# Occurrence of Tako-Tsubo Cardiomyopathy and Chronobiological Variation

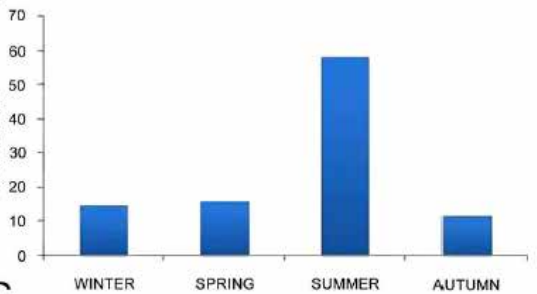
## Occurrence of Tako-Tsubo Cardiomyopathy and Chronobiological Variation

Nicolas Mansencal, Rami El Marmouh, and Olivier Dubourg  
*J. Am. Coll. Cardiol.* 2010; 55:500-501  
 doi:10.1016/j.jacc.2009.08.062

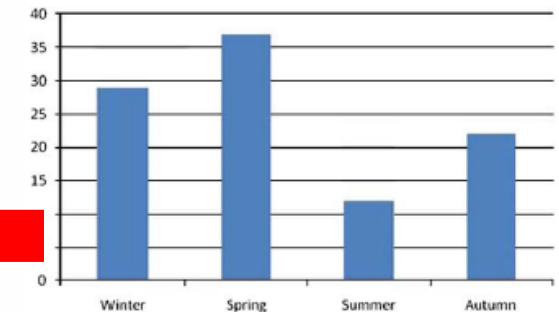


*2002-2007  
90 pazienti*

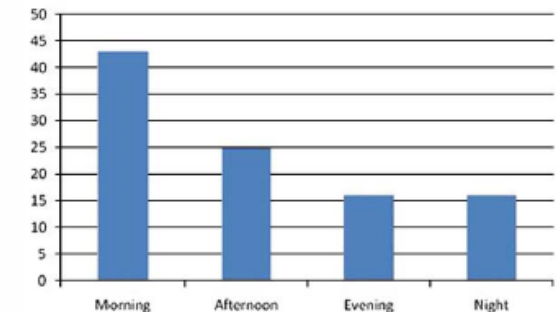
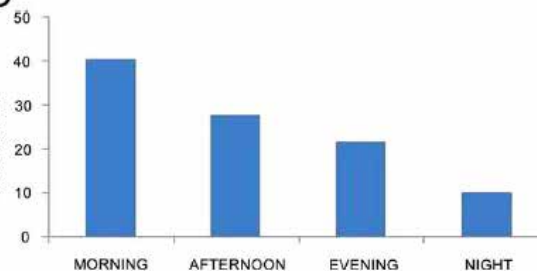
*2000-2008  
51 pazienti*



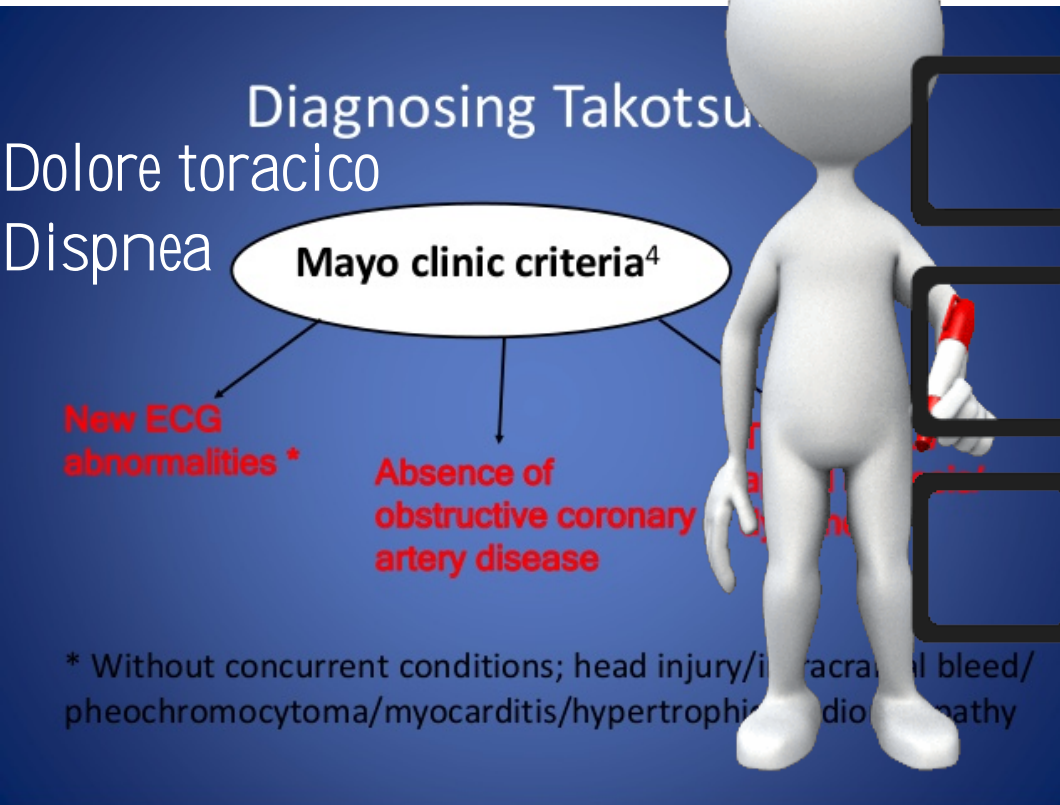
*Primavera o estate?*



*Sintomi insorgono di giorno (ore 8-ore 16)*



# la diagnosi Tako-tsubo;



- Trauma cranico recente
- Emorragia cerebrale
- Feocromocitoma
- Cardiomiopatia ipertrofica
- Miocardite

## I fattori scatenanti:

- Tako Tsubo Inizia quasi sempre con un fattore precipitante.



- Infarto spesso senza fattore precipitante.  
Spesso durante sonno o riposo.

# FATTORI SCATENANTI.

Ca: 30 % ??

Emozionali

ca: 10%

Non emozionali

Morte improvvisa familiare

Discussione violenta

Violenze domestiche

Diagnosi mediche gravi

Fallimenti finanziari

27%

Lavoro fisico intenso

Attacco asma

Malattie autoimmuni

Epilessia

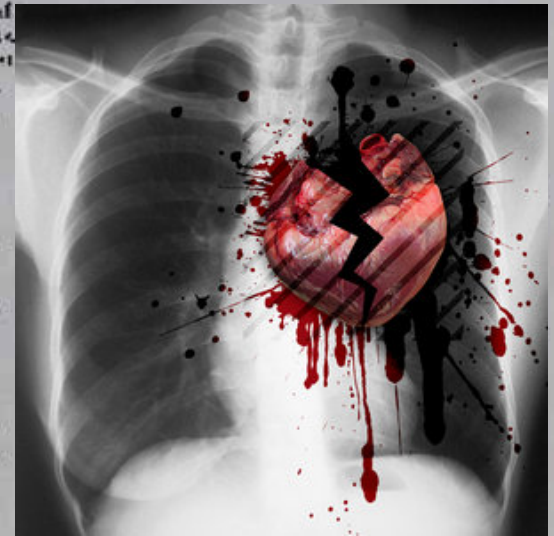
Accidenti cerebrovascolari

37%

# I fattori scatenanti:

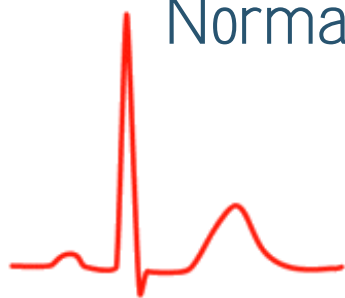
**Table 1. Clinical Characteristics of 19 Patients with Stress Cardiomyopathy on Admission.\***

Patient No.	Age	Sex	Race or Ethnic Origin	Coronary Risk Factors	Emotional Stressor	Time of Symptom Onset hr	Clinical Presentation		
							ECG	ECG	ECG
1	62	F	B	HTN, smoking	<u>Mother's death</u>	12	88	93	Chest pain
2	63	M	AA	HTN, Chol	Car accident	1	74	90	Chest pain
3	48	F	W	HTN, Chol, smoking	Surprise reunion	4	108	45	Chest pain; shock (IABP)
4	60	F	W	HTN	Surprise party	2	66	109	Chest pain
5	66	M	W	HTN, III	<u>Father's death</u>	5	99	75	Chest pain
6	77	M	W	HTN, III	<u>Husband's death</u>	6	81	73	Chest pain
7	52	M	W	Smoking	<u>Friend's death</u>	2	84	100	Chest pain; heart failure
8	52	F	W	HTN	<u>Father's death</u>	5	67	108	Chest pain
9	32	F	W	Chol, FH	<u>Mother's death</u>	1	109	101	Chest pain
10	61	F	W	Chol	Fear of procedure	1	95	91	Chest pain
11	66	F	W	Smoking	Fierce argument	2	70	66	Chest pain; VF
12	87	F	W	HTN, Chol, DM	<u>Friend's death</u>	1	64	52	Chest pain;
13	69	<b>M</b>	W	HTN, Chol	Court appearance	2			
14	50	F	W	None	Fear of choking	2			
15	71	M	W	None	Public speaking	1			
16	76	M	W	HTN, DM, smoking	<u>Husband's death</u>	2			
17	65	M	W	HTN, Chol, smoking	Armed robbery	2			
18	71	F	W	HTN	<u>Son's death</u>	6			
19	27	F	A	None	<u>Tragic news</u>	3			

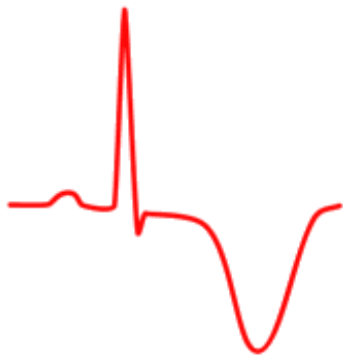


# Evoluzione ECG tipica nella Tako-tsubo cardiomiopatia.

Normale



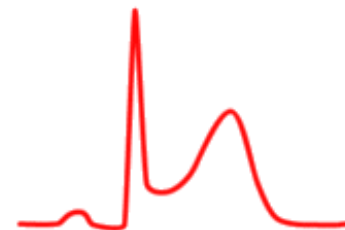
Giorni.



QT prolungato



Prime ore



QT-corto

Giorni/ Settimane

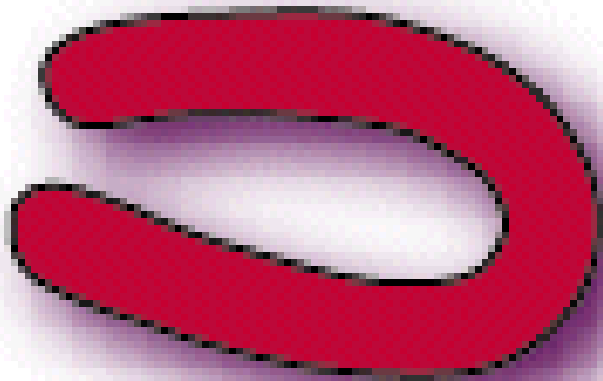


QT-normale.

# Diagnosi: ECO o Ventricolografia

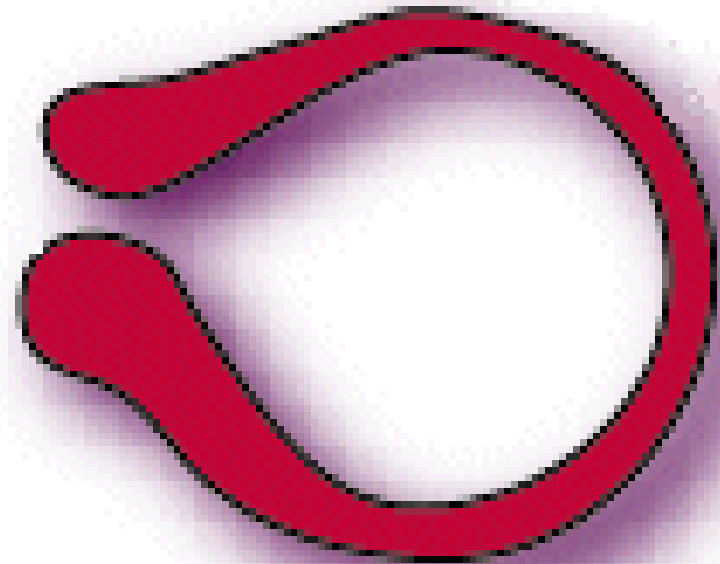
(Spesso dopo coronarografia negativa !)

Contrazione normale.



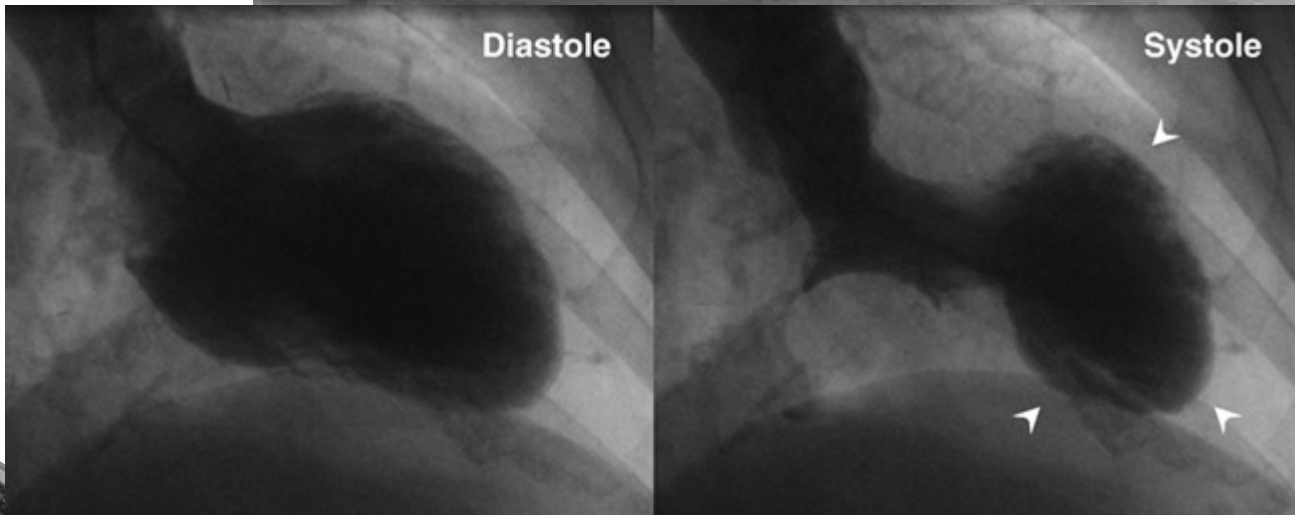
Ipercinesia

Tako-tsubo.



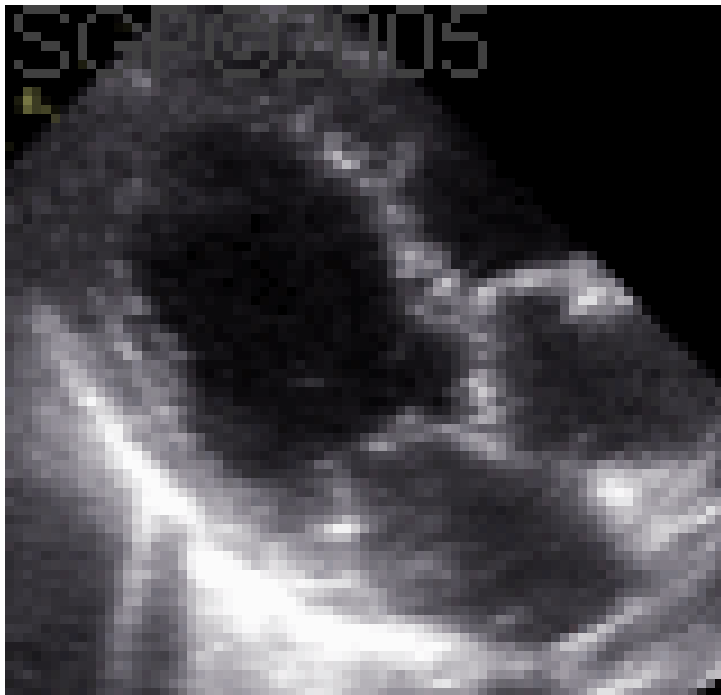
Acinesia, Discinesia apicale.

# La ventriculografía.

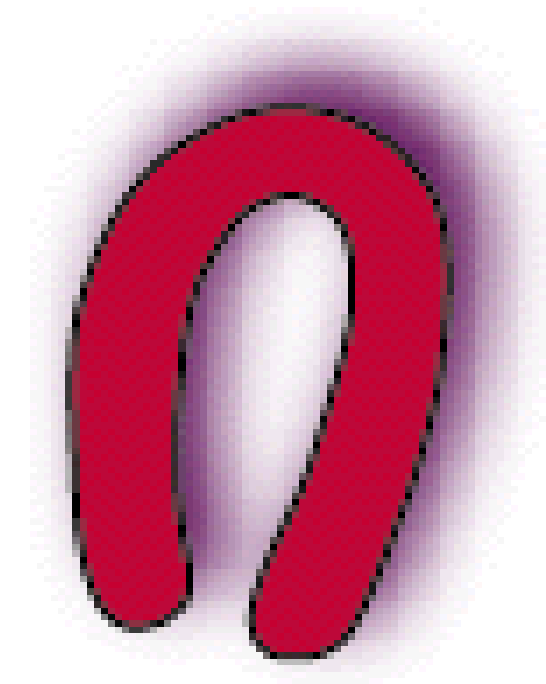




# ECO cuore.



# ECO cuore dopo 2 settimane.



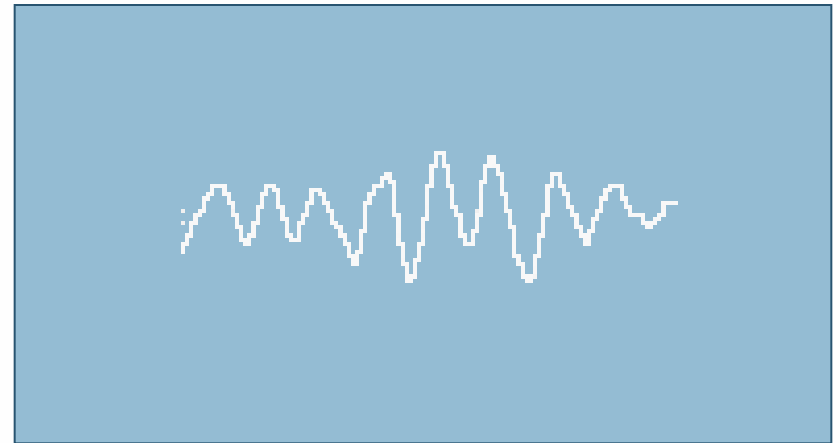
# Tako-tsubo cardiomiopatia.

Non è una malattia  
delle donne isteriche !!!

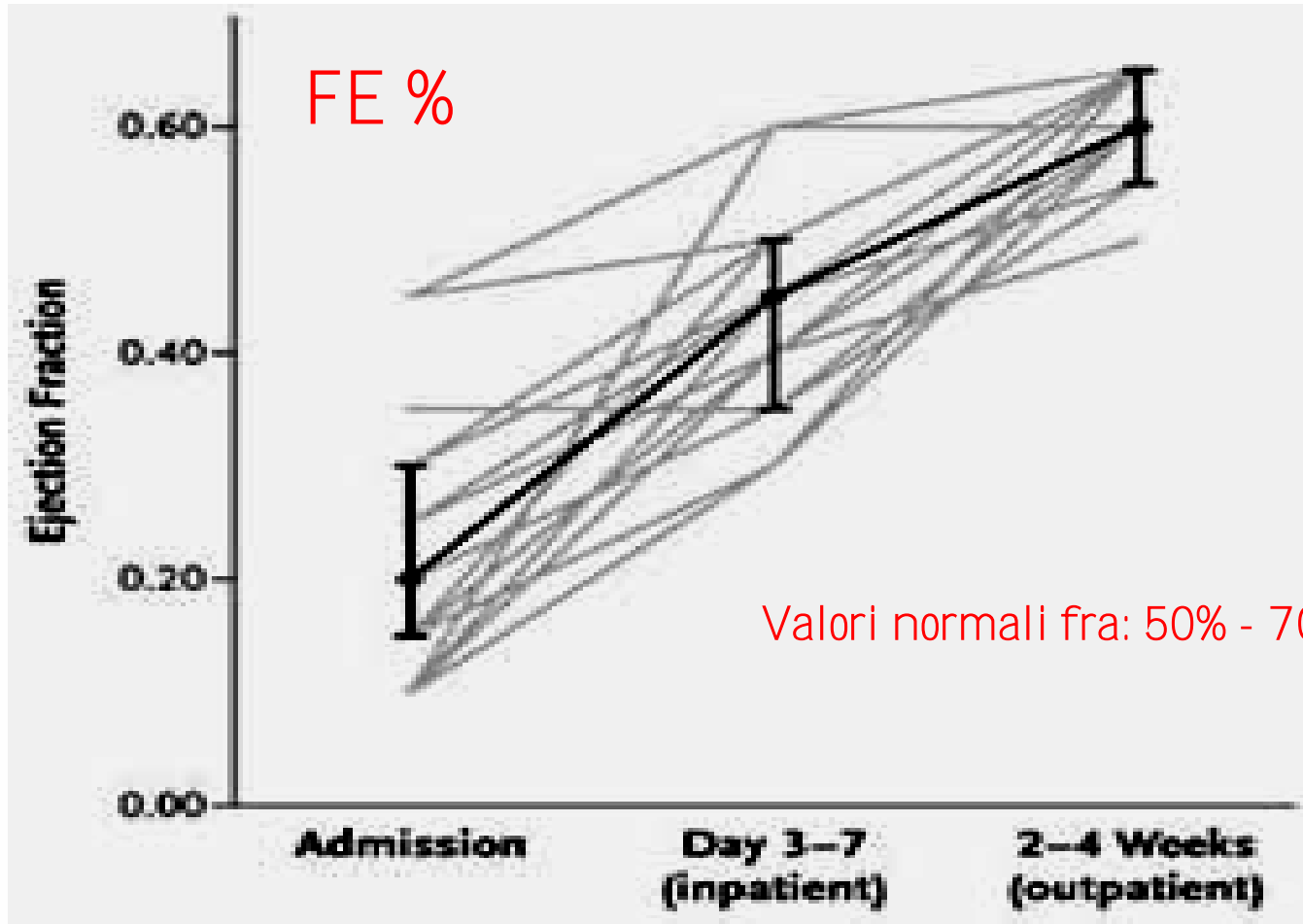


# A broken heart is not just folklore !!

Mortalità fra 2-6%  
Disturbi del ritmo  
Shock cardiogeno  
Rottura del ventricolo  
Recidività ca: 10%

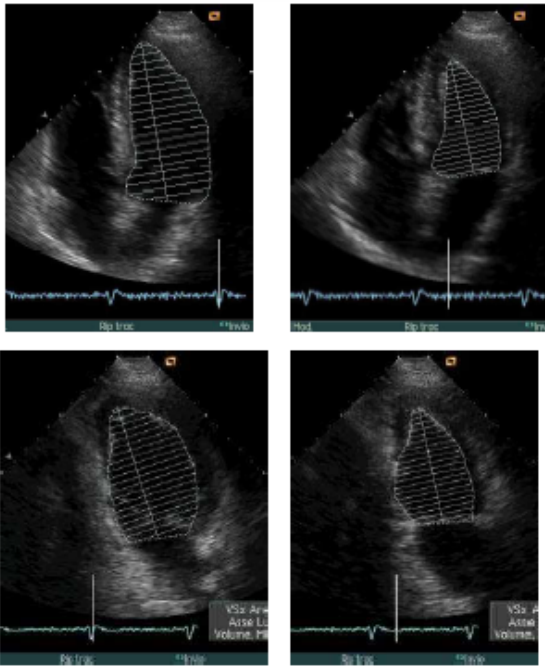


# A broken heart is not just folklore !!



# la frazione di eiezione. (Valori normali fra: 50% - 70%)

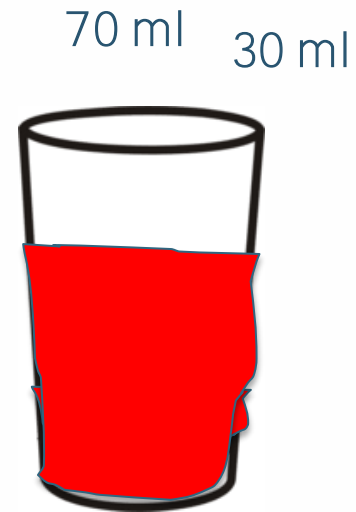
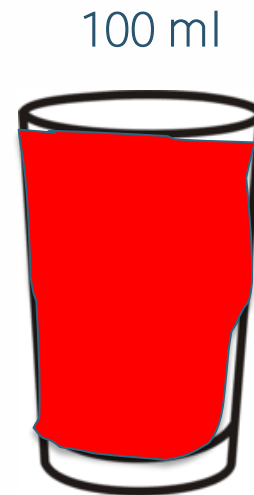
$$\frac{SV}{EDV} = \frac{70}{100} = 70\%$$



VTD = 120 ml  
 VTS = 47 ml  
 Gittata = 73 ml  
 FE = 61%

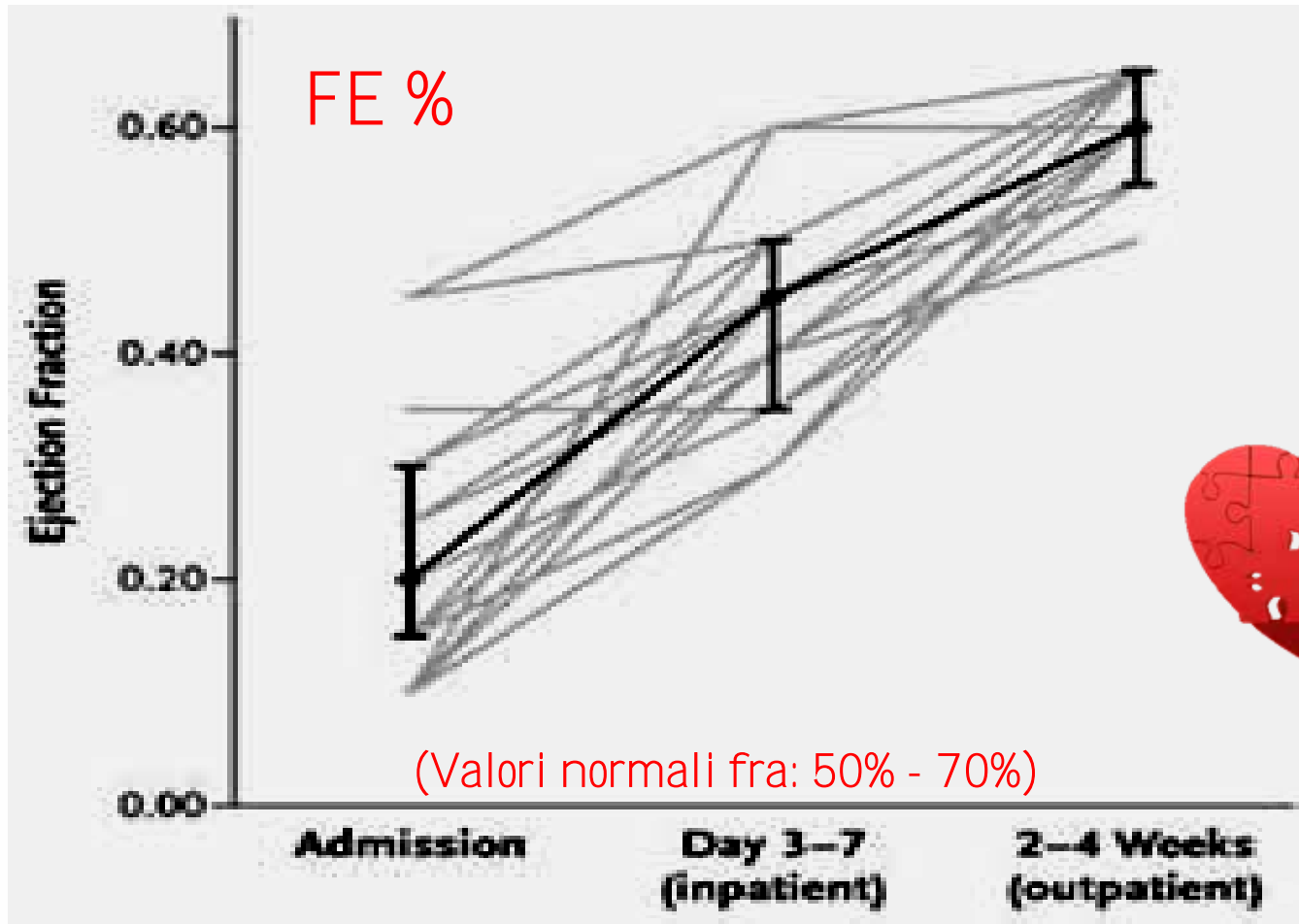
VTD = 127 ml  
 VTS = 58 ml  
 Gittata = 69 ml  
 FE = 54%

VTD = 129 ml  
 VTS = 73 ml  
 Gittata = 56 ml  
 FE = 43%



$$\frac{SV}{EDV} = \frac{30}{100} = 30\%$$

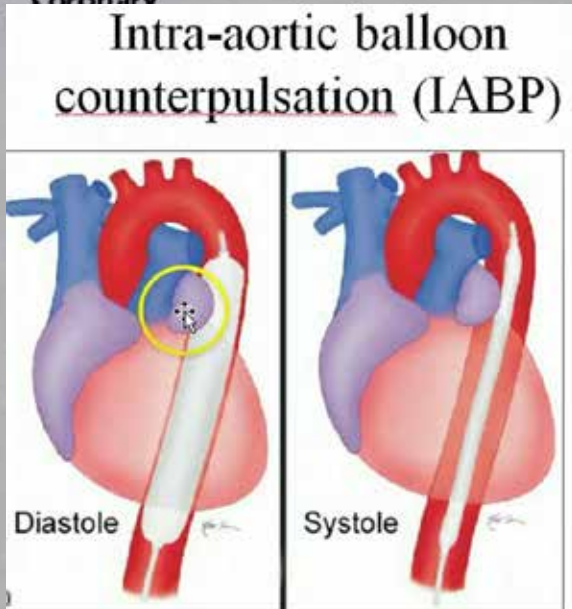
# A broken heart is not just folklore !!



# A broken heart is not just folklore !!

**Table 1. Clinical Characteristics of 19 Patients with Stress Cardiomyopathy on Admission.\***

Patient No.	Age	Sex	Race or Ethnic Origin	Comorbidities		Time after symptom onset (hr)	Clinical Presentation		
				Heart Rate (beats/min)	MAP (mm Hg)		Symptoms		
1	67	F	B			12	71	96	Chest pain
2	63	F	AA			1	→→→	→→→	Heart failure; hypotension
3	48	F	W			4	85	88	Chest pain
4	60	F	W			2	109	53	Chest pain; hypotension (IABP)
5	66	F	W			5	65	91	Chest pain
6	77	F	W			6	106	98	Chest pain
7	57	F	W			2	97	50	Chest pain; hypotension (IABP)
8	52	F	W			5	88	93	Chest pain
9	32	F	W	Chol, FH	Mother's death	1	71	90	Chest pain
10	61	F	W	Chol	Fear of procedure	1	→→→	→→→	Chest pain; shock (IABP)
11	66	F	W	Smoking	Fierce argument	2	66	109	Chest pain
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13	69	M	W	HTN, Chol	Court appearance	2	81	73	Chest pain
14	50	F	W	None	Fear of choking	2	→→→	→→→	Chest pain; heart failure
15	71	F	W	None	Public speaking	1	67	108	Chest pain
16	76	F	W	HTN, DM, smoking	Husband's death	2	109	101	Chest pain
17	65	F	W	HTN, Chol, smoking	Armed robbery	2	95	91	Chest pain
18	71	F	W	HTN	Son's death	6	70	66	Chest pain; VF
19	27	F	A	None	Tragic news	3	64	52	Chest pain





# SINDROME TAKO –TSUBO

## terapia.

Trattamento dello scompenso cardiaco

Trattamento dello shock

Identificazione gradiente dinamico

Inotropi ?

Contropulsazione aortica. IABP

Anticoagulazione

In presenza di trombosi apicale

Terapia antiischemica

Potrebbe essere utile Beta-bloccanti, Asa e nitrati in fase acuta

Terapia a lungo termine

Non ancora definita (recidive ca: 10%)

*Novo, G Ital Cardiol 2008*

# Prognosi.....Favorevole !

Mortalità ospedaliera fra il 2 – 6 %  
La complicanza più comune è lo  
scompenso cardiaco



# Le cause di Tako-tsubo cmp.

- Ignota
- Concentrazione elevata di: Adrenalina, Nor-adrenalina.
- Non inducibile negli animali

Fino 34 volte di più dei valori normali.

Fino 4 volte di più nel Paz. con infarto.



# IIPOTESI PATOGENETICHE:

**A broken heart  
is not just folklore**

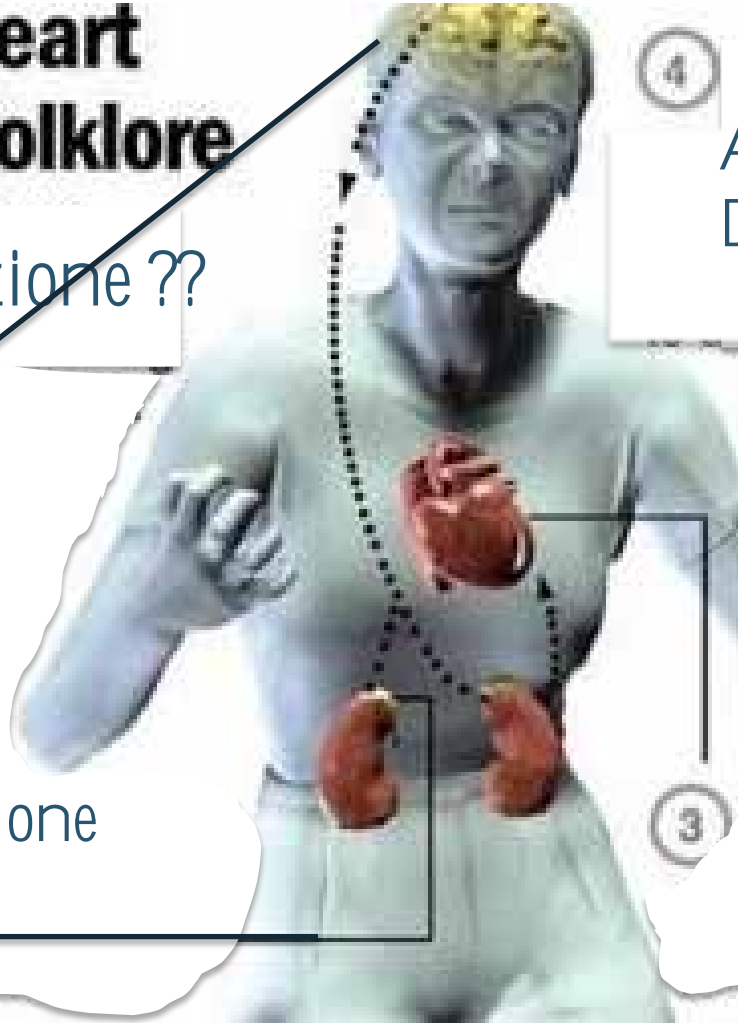
Predisposizione ??

① Dolore o  
Emozione

② Stimolazione  
Ghiandole  
surrenali

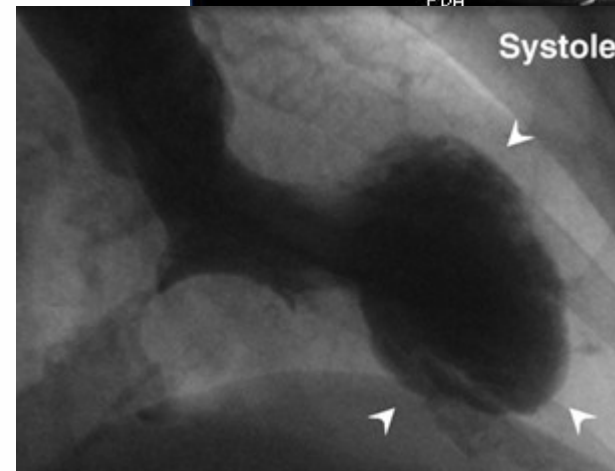
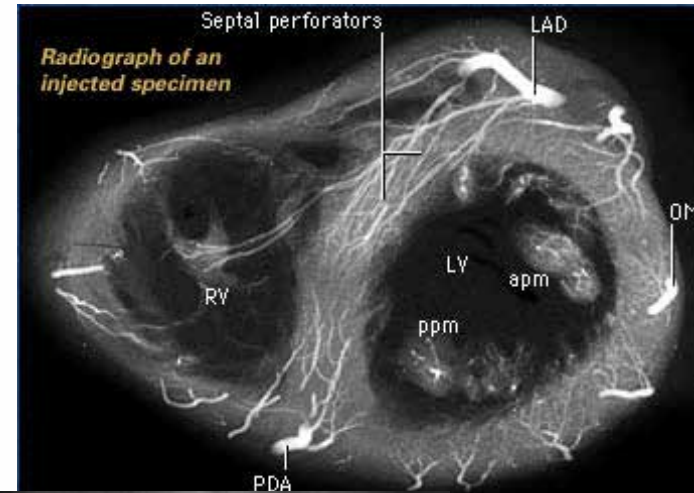
④ Angor  
Dispnea

③ Impediscono la  
contrazione del  
cuore



# IIPOTESI PATOGENETICHE:

- Vasospasmo delle coronarie epicardiche.
- Spasmo microvascolare.
- Lesione diretta dei cardiomiociti.
- Ostruzione dinamica intraventricolare sx.
- Cocaina.



# Le cause di Tako-tsubo.

## TAKO-TSUBO syndrome

Bad news: emotions can break our hearts, and women are at increased risk

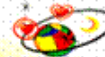
Good news: the syndrome seems to be benign with rapid full recovery of LV dysfunction

However: further research is needed (substrate, triggers, apical location, ...).

Fioretti PM, IT, 35



**Highlight Session**  
World Congress of Cardiology 2006  
2-6 September - Barcelona, Spain



www.worldcardi



CARDIOCENTROTICINO

5-12-2017

Perché...solo le donne soffrono  
` ` The broken Heart syndrome ` ` ??

Non lo so.....



Grazie per la vostra Attenzione...



Cardiocentro Ticino

Paul van der Heiden

