

TIGULLIO II Congresso Nazionale di 2024 ARITMOLOGIA

16-17 Aprile Sestri Levante (GE)

Presidente del Congresso

Guido Parodi, Lavagna

Comitato Scientifico

Paolo Donateo, Lavagna (*Responsabile Scientifico*)

Roberto Maggi, Lavagna

Sede Congressuale

Hotel Vis a Vis ****

Sestri Levante



APPROCCIO PRAGMATICO ALL'ELETTROSTIMOLAZIONE NELLA SINCOPE DA SOSPETTA ARITMIA: LIMITI E UTILITA'

Marco Tomaino

Chair of the Arrhythmologic Diagnostic Center and Syncope Unit

Departement of Cardiology

Central Hospital of Bolzano

DISTURBO ELETTRICO DI CONDUZIONE DI NATURA:

- INTRINSECA**
 - ESTRINSECA**
- 

Treatment of syncope: Cardiac arrhythmias

Syncope due to intrinsic cardiac SND or AV block

ECG-documented bradycardia

Bifascicular BBB (ECG-undocumented bradycardia)

Pacing indicated

Sympt. SND (Class I)

Established relationship between SB and synco

Asympt. SND (Class IIa)

Non-established relationship between SB and syncope

2° and 3° AV block (Class I)

- Persistent AVB
- Paroxysmal AV block (narrow QRS and BBB)
- AF with slow HR

EPS or ILR positive (Class I)

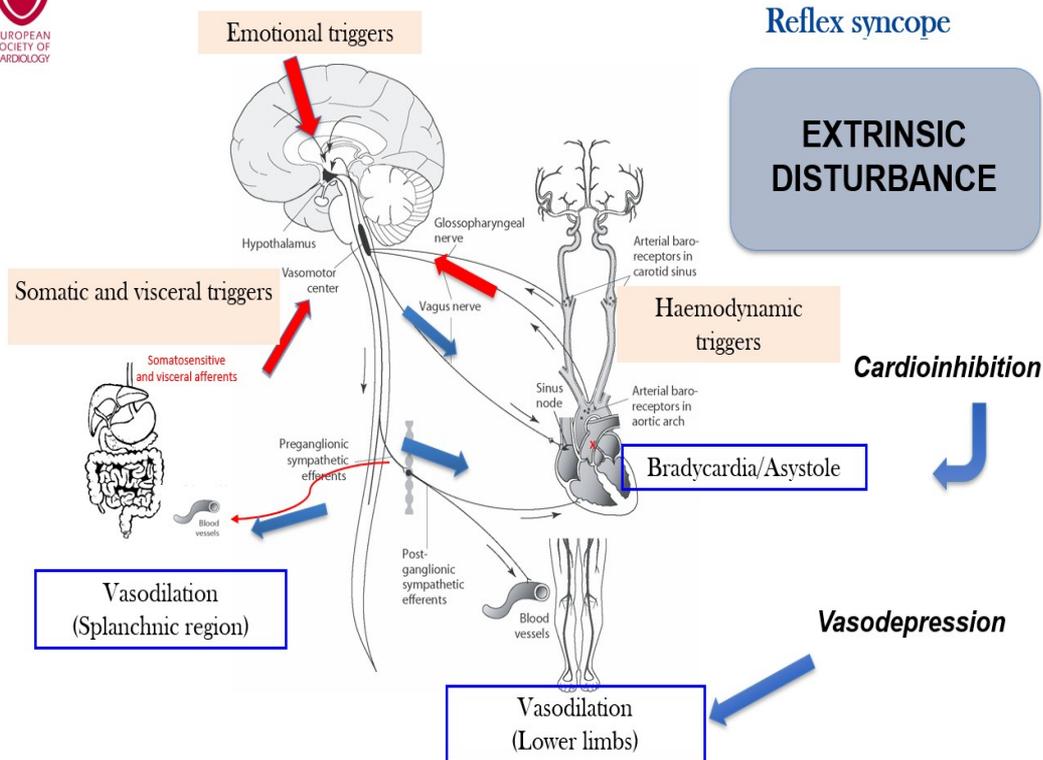
- HV >70ms or induced AV block
- Sympt. pause >3"
- Asympt. pause >6"

EPS/ILR negative or not done (Class IIb)

Empiric pacing (mechanism uncertain)



EUROPEAN SOCIETY OF CARDIOLOGY



PATIENTS SELECTION

Patients must have a sufficiently **severe clinical presentation** to warrant specific treatment

High frequency or risk provided by guidelines:

- invalidated quality of life
- unpredictable syncope
- syncope exposing patients to risk of trauma
- occurrence of syncope during “high risk activity”

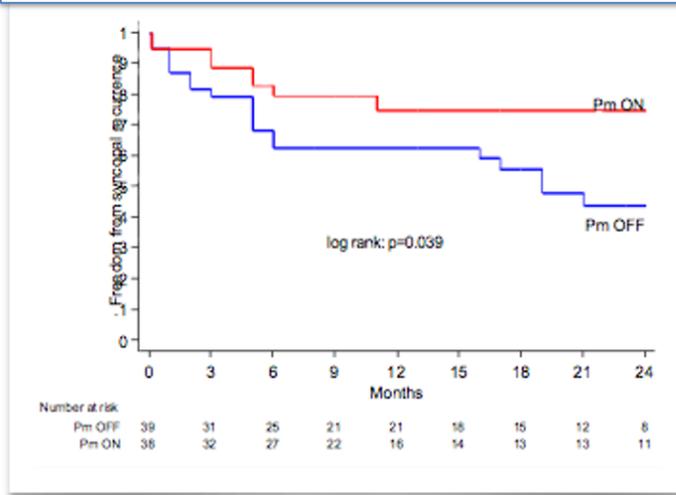
ISSUE 3

International Study on Syncope of Uncertain Etiology 3

Context and Background

M. Brignole, C. Menozzi, A. Moya, D. Andresen, J.J. Blanc, A.D. Krahn, W. Wieling, X. Beiras, J.C. Deharo, V. Russo, M. Tomaino, R. Sutton

Pacing is effective in reducing recurrence of syncope in patients >40 years with severe asystolic NMS (ILR).
 There was 32% absolute risk reduction and 57% relative risk reduction



25%
 Recurrence of
 syncope despite PM
 Implantation

Circulation May 7, 2012

Context and Background

**The benefit of pacemaker therapy in patients with presumed neurally-mediated Syncope and documented asystole is greater when tilt test is negative
An analysis from the Third International Study on Syncope of Uncertain Etiology (ISSUE-3)**

M.Brignole, P.Donateo, M.Tomaino, R.Massa, M.Iori, X.Beiras, A.Moya, T.Kus, J.C. Deharo, S.Giuli, A.Gentili and R.Sutton

52 Patients (26 TT+, 26 TT-) with asystolic ILR were treated with a PM

Recurrence of syncope in — 8 (31%) in patients with TT+
— 1 (4%) in patients with TT-

CIRCULATION December 2013

Context and Background

The benefit of pacemaker therapy in patients with neurally-mediated syncope and documented asystole: a metanalysis of implantable loop recorder studies (ISSUE-2, ISSUE-3, SUP-2, USA-FU)

Brignole M, Deharo JC, Menozzi C, Moya A, Sutton R, Tomaino M, Ungar A.

Patients with negative tilt test will have <6% risk of recurrence of syncope within 3 years, like patients paced for intrinsic atrioventricular block

BIOSync CLS



European Heart Journal (2020) 00, 1–9
European Society of Cardiology
doi:10.1093/eurheartj/ehaa936

FASTTRACK CLINICAL RESEARCH
Arrhythmias

Cardiac pacing in severe recurrent reflex syncope and tilt-induced asystole

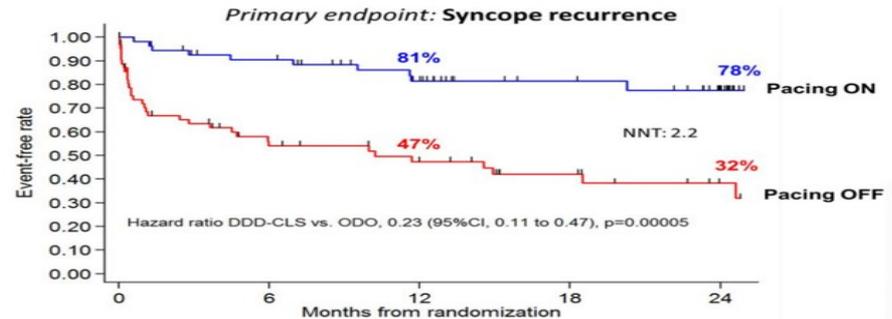
Michele Brignole^{1,2*}, Vincenzo Russo³, Francesco Arabia⁴, Mario Oliveira⁵, Alonso Pedrote⁶, Arnaud Aerts⁷, Antonio Rapacciuolo⁸, Serge Boveda^{9,10}, Jean Claude Deharo¹¹, Giampiero Maglia⁴, Gerardo Negro³, Daniele Giacomelli¹², Alessio Gargaro¹², and Marco Tomaino¹³; for the BioSync CLS trial Investigators[†]

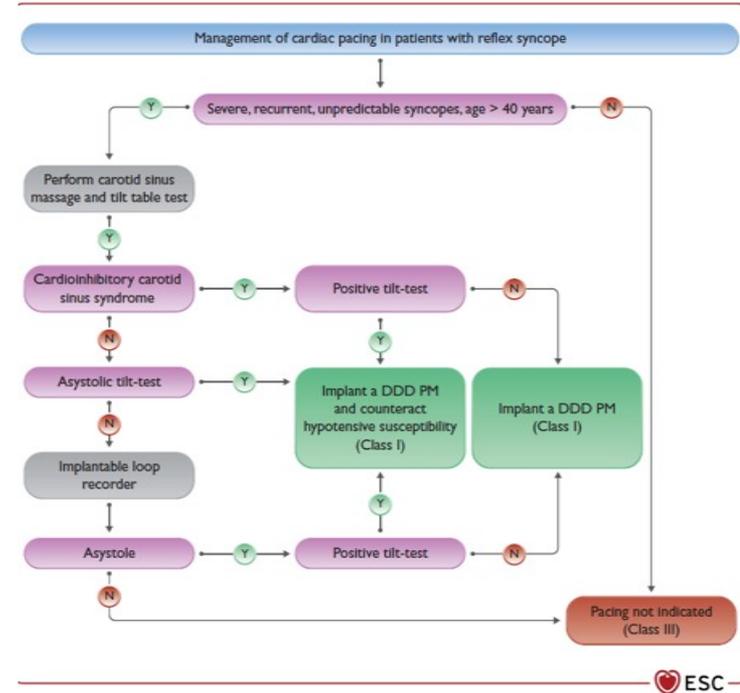
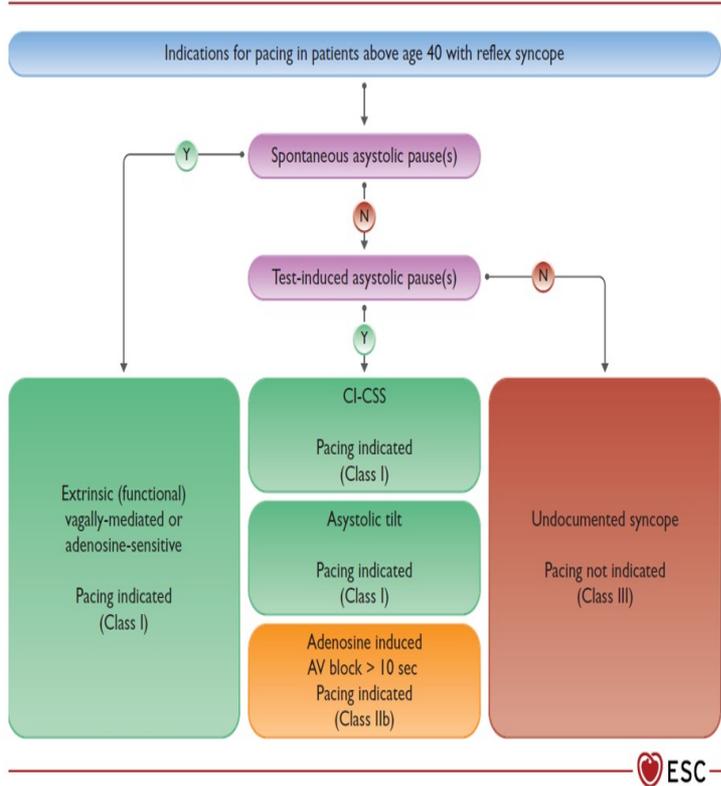
¹Department of Cardiovascular, Neural and Metabolic Sciences, Faint & Fall Programme, IRCCS Istituto Auxologico Italiano, Ospedale San Luca, Piazzale Brescia 20, Milano 20149, Italy; ²Department of Cardiology, Arrhythmology Centre and Syncope Unit, Ospedale del Tigullio, via don Bobbio 24, 16033 Lavagna, Italy; ³Department of Cardiology, Chair of Cardiology, University of the Study of Campania "Luigi Vanvitelli", Ospedale Monaldi, Via Leonardo Bianchi, 80131 Napoli, Italy; ⁴Department of Cardiology, Unit of Arrhythmology, A.O. Pugliese-Ciaccio, Viale Papa Pio X, 83, 86100 Casertano, Italy; ⁵Cardiology Department, Santa Marta Hospital—University Central Hospital of Lisbon, Rue de Santa Marta, 50, 1150-140 Lisboa, Portugal; ⁶Division of Arrhythmology, Virgen del Rocío University Hospital, Avenida Manuel Siurot, 40013 Sevilla, Spain; ⁷Department of Cardiology, Zuyderland Medisch Centrum, Henri Dunantstraat, 5 6419PC Heerlen, The Netherlands; ⁸Department of Advanced Biomedical Sciences, Federico II University of Naples, via Sergio Panisi 5, 80100 Napoli, Italy; ⁹Heart Rhythm Department, Clinique Pasteur, 45 avenue de Lombes - BP 27617 - 31076 Toulouse Cedex 3, France; ¹⁰Universitair Ziekenhuis Brussel—VUB, Heart Rhythm Management Centre, Laarbeeklaan 101 1090 Brussels, Belgium; ¹¹Department of Cardiology, Hôpital La Timone Academies, 264 Rue Saint-Pierre 13385 Marseille Cedex 5, France; ¹²Research Clinical Unit, Biotronik Italy, Via delle Industrie, 11 20090 Vimodrone (MI), Italy; and ¹³Department of Cardiology, Ospedale Generale Regionale, Via Lorenz Böhler 5 39100 Bolzano, Italy

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Benefit of dual-chamber pacing with Closed Loop Stimulation (CLS) in tilt-induced cardio-inhibitory reflex syncope. A randomized double-blind parallel trial

PI	Site	City	Country
Dr. Michele Brignole (study coordinator)	Ospedale del Tigullio	Lavagna	IT
Dr. Marco Tomaino (study coordinator)	Ospedale di Bolzano	Bolzano	IT
Dr. Arnaud Aerts	Atriam MC	Heerlen	NL
Dr. Fabrizio Ammirati	Ospedale G.B. Grassi	Ostia	IT
Prof. Jean-Claude Deharo	Timone University Hospital	Marseille	FR
Mohamed Hamdan	University of Wisconsin	Madison	US
Dr. Maurizio Lunati	Ospedale Niguarda	Milano	IT
Dr. Angel Moya	Hospital Universitario Vall d'Hebron	Barcelona	ES
Dr. Felix Ayalá-Paredes	CHUS - Centre hospitalier universitaire de Sherbrooke	Sherbrooke	CA



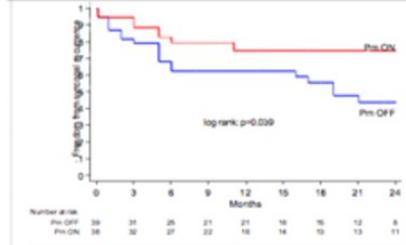


International Study on Syncope of Uncertain Etiology 3

M. Brignole, C. Menozzi, A. Moya, D. Andresen, J. J. Blanc, A. D. Krahn, W. Wieling, X. Beiras, J. C. Deharo, V. Russo, M. Tomaino, R. Sutton

Pacing is effective in reducing recurrence of syncope in patients >40 years with severe asystolic NMS (ILR). There was 32% absolute risk reduction and 57% relative risk reduction

Issue 3 : 2-year syncope rate 25%
 With 32% absolute risk reduction



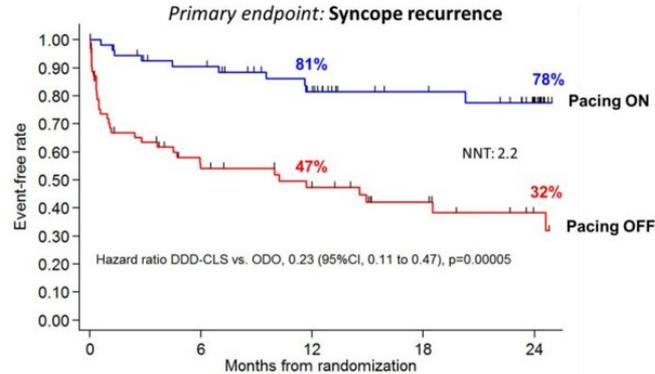
25% Recurrence of syncope despite PM Implantation

Circulation May 7, 2012

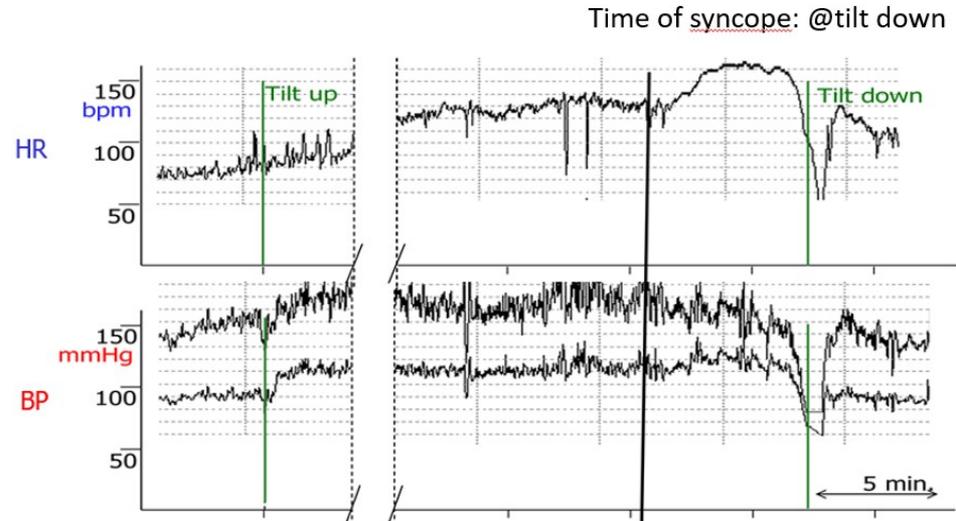
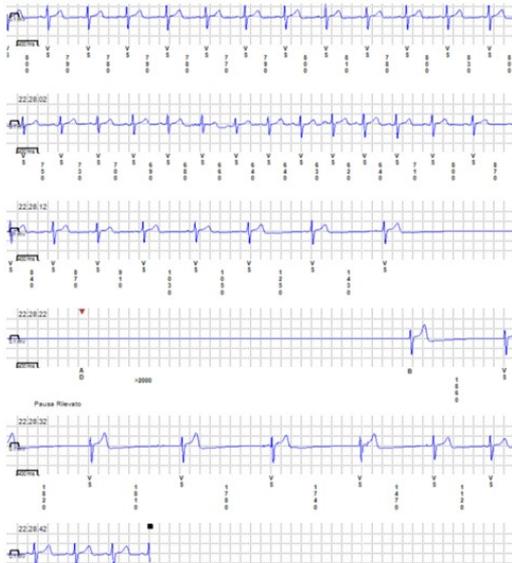
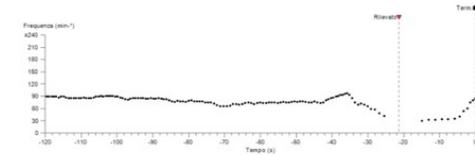
Biosync: 2-year syncope rate 22%
 With 46% absolute risk reduction

Cardiac pacing in severe recurrent reflex syncope and tilt-induced asystole

Michele Brignole^{1,2,4}, Vincenzo Russo³, Francesco Arabia⁴, Mario Oliveira⁴, Alonso Pedrote⁴, Arnaud Aerts⁵, Antonio Rapacciuolo⁴, Serge Boveda^{1,10}, Jean Claude Deharo¹¹, Giampiero Maglia⁴, Gerardo Nigro⁴, Daniele Giacomelli¹¹, Alessio Gargaro¹², and Marco Tomaino¹¹, for the BioSync CLS trial Investigators¹



When did syncope exactly occur?





ESC

European Society
of Cardiology

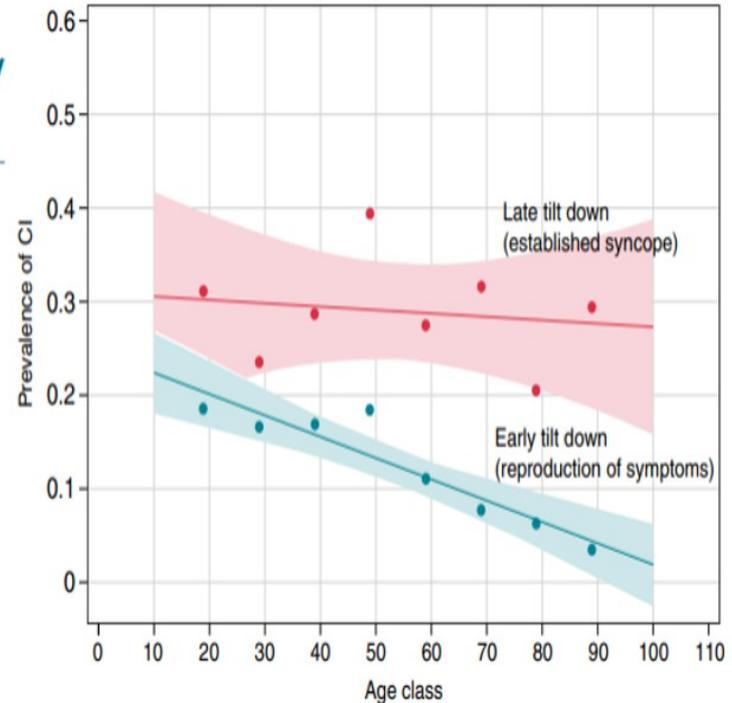
Europace (2022) 00, 1–7

<https://doi.org/10.1093/europace/euac154>

REVIEW

Prevalence of asystole during tilt test-induced vasovagal syncope may depend on test methodology

Vincenzo Russo ¹, Erika Parente ¹, Antonella Groppelli ², Giulia Rivasi ³, Marco Tomaino ⁴, Alessio Gargaro ⁵, Daniele Giacomelli ⁵, Andrea Ungar ³, Gianfranco Parati ², Artur Fedorowski ^{6,7}, Richard Sutton ⁸, J. Gert van Dijk ⁹, and Michele Brignole ^{2*}



The importance of video recording during Tilt Table Testing (TTT)



Europace (2022) 00, 1-5
European Society of Cardiology
<https://doi.org/10.1093/europace/eac193>

TECHNICAL ISSUES

A novel and practical method to add video monitoring to tilt table testing

Frederik Jorrit de Lange ¹*, Willem Petrus Merijn Emmanuël Hofland ¹,
Alessio Ferrara ^{2†}, Alessio Gargaro ^{2†}, Michele Brignole ^{3†}, and
Jan Gerrit van Dijk ⁴

¹Amsterdam UMC, Department of Clinical and Experimental Cardiology, Amsterdam Cardiovascular Sciences, University of Amsterdam, Heart Centre, Meibergdreef 9, 1105AZ, Amsterdam, The Netherlands; ²BIOTRONIK Italia S.p.A., Clinical Research Unit, Via dell'Industria, 11, 20090 Milan, MI, Italy; ³Department of Cardiovascular, Neural and Metabolic Sciences, Faint & Fall Programme, IRCCS Istituto Auxologico Italiano, San Luca Hospital, Piazzale Brescia, 20, 20149 Milan, MI, Italy; and ⁴Department of Neurology, Leiden University Medical Centre, Albinusdreef 2, Zaid Holland, 2333 ZA Leiden, The Netherlands

Received 1 August 2022, accepted after revision 5 October 2022



Head-up Tilt Test in patients with reflex syncope and asystolic response who received a dual-chamber pacemaker with the Closed Loop Stimulation (CLS) and participated in the BIOSync trial – The BIO Sync-HUTT study
Versione 2.0 | 20-APR-2022 | Rif. CIP Versione 2-0



1 Temporal relationship between hemodynamic changes and activation of 2 Closed Loop Stimulation during tilt-induced vasovagal syncope

3
4
5 Vincenzo Russo MD^{1*}, Marco Tomaino MD^{2*}, Erika Parente¹ MD, Angelo Comune MD¹, Daniele
6 Giacomelli MSc¹, Paola Napoli MSc¹, Alessio Gargaro MSc¹, Michele Brignole MD⁴.

7 * V. Russo and M. Tomaino are co-first authors

8

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- 13 4. IRCCS Istituto Auxologico Italiano, Faint and Fall Research Centre, Department of Cardiology, S.
14 Luca Hospital, Milan, Italy

15
16 Running head: Close loop stimulation in vasovagal syncope

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18

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21 Piazzale Brescia 20, 20149 Milano, Italy

22

23

ACCEPTED MANUSCRIPT

**NeuroArrhythmias Area Registry of AIAC (NAARA)
Syncope-Asystole Latency Time in Tilt Table Test
(TT-SALT) study**

Welcome

NAARA

The NeuroArrhythmias Area Registry of AIAC

Login

Password

Enter

Principal Investigator:

Tomaino Dr. Marco
Central hospital of Bolzano, Department of Cardiology
Via Lorenz Böhler, 5, 39100 Bolzano BZ

Co-Investigators:

Unterhuber Dr. Matthias
Strano Prof. Stefano
Sette Dr.ssa Antonella
Marcheselli Dr. Andrea
Di Maggio Dr.ssa Debora
Attena Dr. Emilio
Gallo Dr. Antonio

Inclusion criteria	<ul style="list-style-type: none">Patients with severe reflex syncope and eligible for invasive treatment strategies according to the ESC Guidelines for pacing 2021[6]
Exclusion criteria	<ul style="list-style-type: none">Other condition which explains syncope cause other than reflex syncopeStructural heart disease (valvular, ischaemic, cardiomyopathies)Pregnancy
Endpoints	<p>Primary:</p> <ul style="list-style-type: none">Syncope - asystole latency time (SALT) in patients with syncope recurrence despite guideline-directed invasive treatment <p>Secondary:</p> <ul style="list-style-type: none">Recurrence of syncope in patients treated with different pacemaker configurations (DDD-CLS, DDD-RDR, <u>DDDr</u>) and NeurocardioablationRecurrences of syncope in treated patients selected by loop recorder, Carotid Sinus Massage and VTTT



Protocollo Italiano Fast

5^a fase di stabilizzazione in clinostatismo

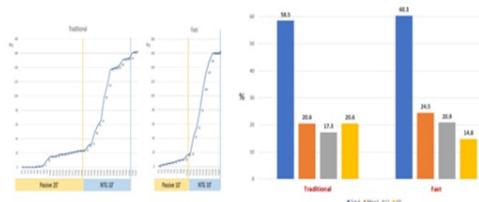
10^a fase ortostatica passiva

400mcgrog Nitroglicerina spray

10^a fase ortostatica potenziata

Durata totale: 25 minuti

	Fast HUTT		Traditional HUTT		P value
	n, 277	n, 277	n, 277	n, 277	
	N (%)	95% CI	N (%)	95% CI	
Overall positivity n (%)	167 (60.3)	54.3–66.1	162 (58.5)	52.4–64.3	0.73
Passive phase n (%)	16 (5.8)	3.3–9.2	26 (9.4)	6.2–13.4	0.07
Active phase n (%)	151 (54.5)	48.4–60.5	136 (49.1)	43.1–55.1	0.23



Short-duration head-up tilt test potentiated with sublingual nitroglycerin in suspected vasovagal syncope: the fast Italian protocol

Vincenzo Russo¹*, Erika Parente¹, Marco Tomaino², Angelo Comune¹, Antonella Sabatini³, Nunzia Laezza¹, Domenico Carretta³, Gerardo Nigro¹, Anna Rago¹, Paolo Golino¹, and Michele Brignole⁴

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277 Fast x 15 minuti di risparmio: 4155 minuti risparmiati

4155 minuti = 69.25 ore risparmiate

69.25 ore = 2 settimane lavorative