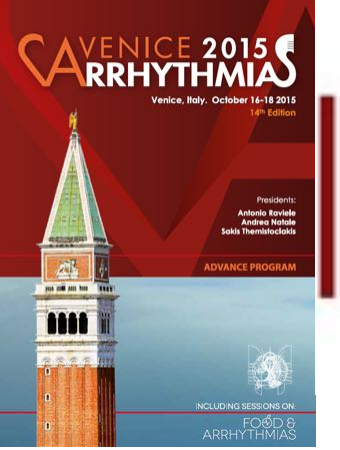


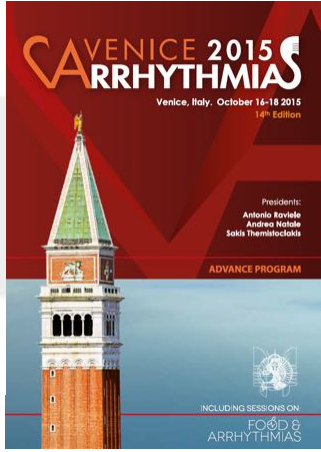
08.30-10.15

Core Curriculum

Syncope 2015 update

Program Chairmen: David G. Benditt – Brian Olshansky

SYNCOPE: EPIDEMIOLOGY



Morbidity and mortality in elderly patients with syncope

Andrea Ungar, MD, PhD, FESC

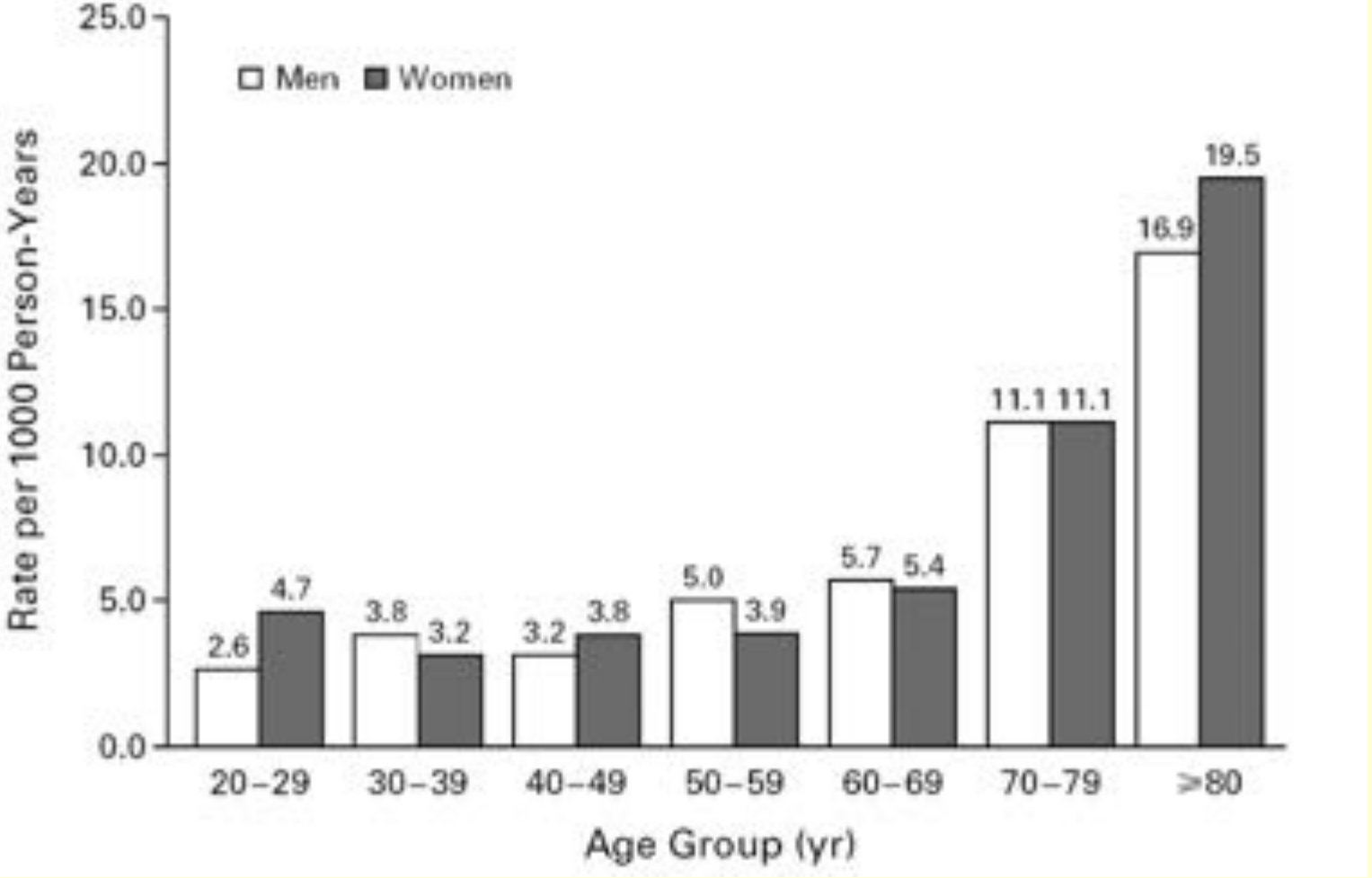
Syncope Unit, Hypertension Centre
Geriatric Cardiology and Medicine
University of Florence, Italy

October 16 - 18
14th EDITION 2015

MY CONFLICTS OF INTEREST ARE

none

Incidence of Syncope in the Framingham Heart Study during 17 years of Follow-Up (n=7814)



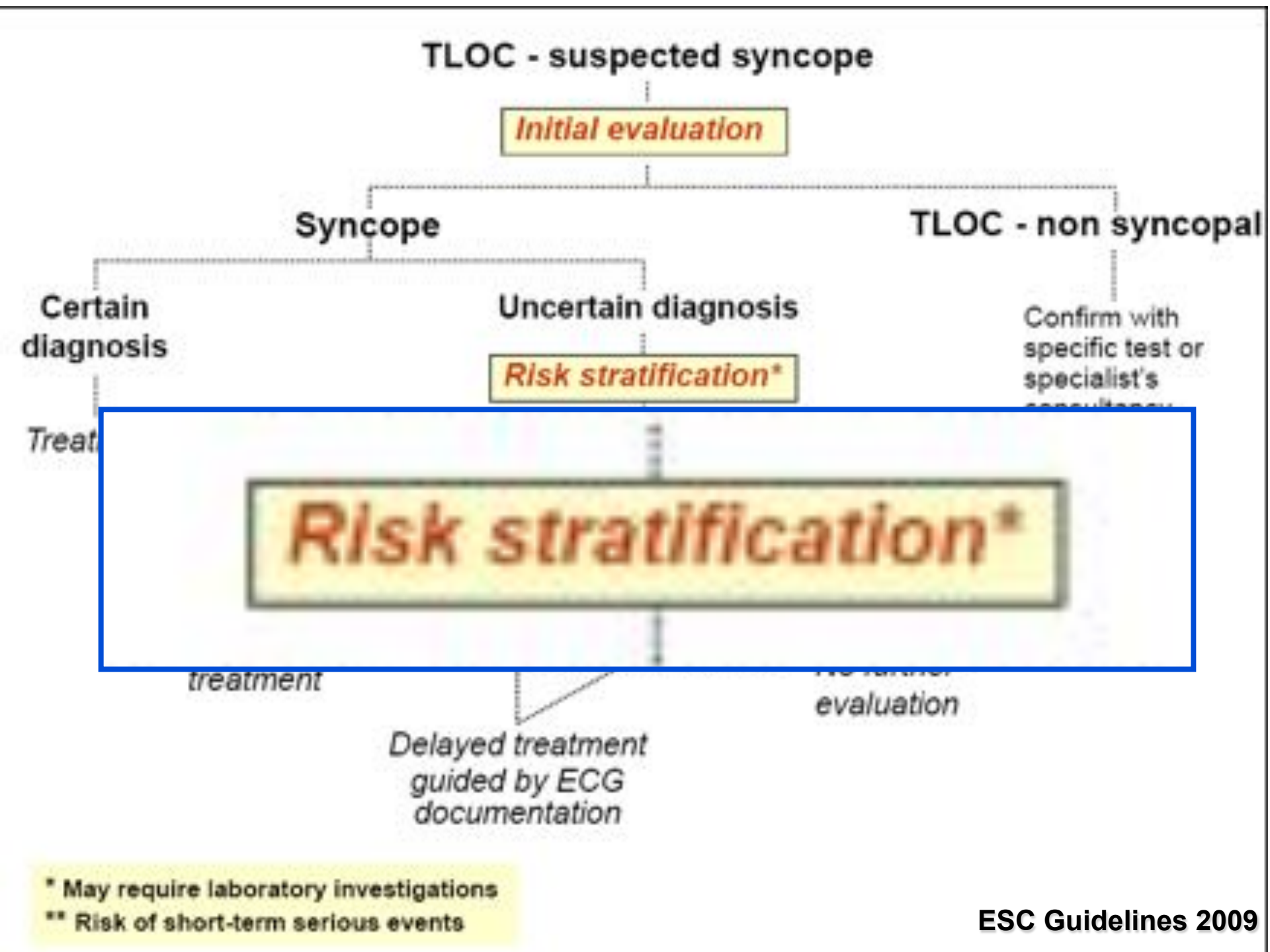
Soteriades ES et al, NEJM 2002; 347: 878

Causes of Syncope in general population (EGSYS 2) and in geriatric departments (GIS)

	*EGSYS 2**	*GIS***		
	All (n=465)	**65-75 years (n=71)**	**> 75 years (n=160)**	**p***
	n (%)	n (%)	n (%)	
Cardiac	74 (16)	8 (11.3)	26 (16.3)	Ns
Neuromediated	309 (66)	44 (62)	58 (36.3)	0,001
Orthostatic	46 (10)	3 (4.2)	49 (30.5)	0,001
Cerebrovascular	0 (0)	0	0	/
Drug Induced	2 (0)	3 (4.2)	8 (5)	ns
Unexplained	11 (2)	10 (14.1)	14 (8.8)	ns

*** <75 years vs >75 years GIS**

*** Brignole M et al, Eur Heart J. 2006; 27:76-82 ** Ungar A et al, JAGS 2006; 54: 1531-1536**



ESC Guidelines 2009

OESIL score

(Osservatorio Epidemiologico sulla Sincope nel Lazio)

Parameter	Value
Age>65 years	+1
Cardiovascular diseases	+1
Syncope without prodroms	+1
Abnormal ECG	+1

A

San Francisco Syncope Rule

Short-term negative prognostic parameters

- Dyspnoea
- Hematocrit<30%
- Systolic blood pressure <90 mmHg
- History of heart failure
- Abnormal ECG

B

STEPS

(Short-Term Prognosis of Syncope)

Parameter
Abnormal ECG
Trauma
No Prodroms
Male

C

EGSYS score

Predictors of cardiac syncope

Parameter	Value
Palpitation before syncope	+4
Cardiac disease or abnormal ECG	+3
Syncope during exercise	+3
Syncope in supine position	+2
Presence of triggers	-1
Typical vasovagal prodrome	-1

D

HEART

Clinical predictors of cardiac syncope at initial evaluation in patients referred urgently to a general hospital: the EGSYS score

A Del Rosso, A Ungar, R Maggi, F Giada, N R Petix, T De Santo, C Menozzi and M Brignole

Heart 2008;94;1620-1626; originally published online 2 Jun 2008; doi:10.1136/hrt.2008.143123

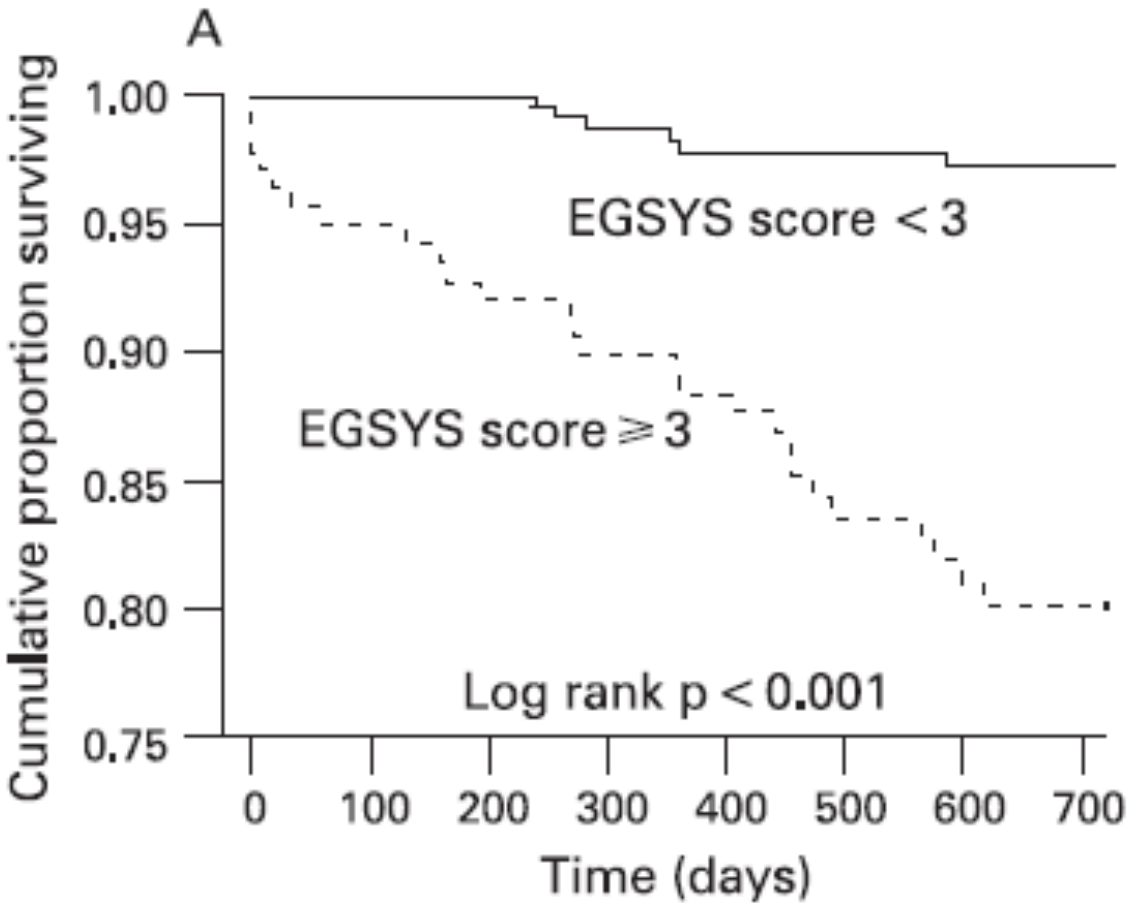
EGSYS score < 3: cardiac syncope is unlikely
EGSYS score ≥ 3: cardiac syncope is probable

Specificity 69%
Sensitivity 95%

Clinical predictors of cardiac syncope at initial evaluation in patients referred urgently to a general hospital: the EGSYS score

A Del Rosso, A Ungar, R Maggi, F Giada, N R Petix, T De Santo, C Menozzi and M Brignole

Heart 2008;94;1620-1626; originally published online 2 Jun 2008; doi:10.1136/hrt.2008.143123



European Heart Journal
doi:10.1093/eurheartj/ehq017

CLINICAL RESEARCH

Early and late outcome of treated patients referred for syncope to emergency department: the EGSYS 2 follow-up study

Andrea Ungar[1*], Attilio Del Rosso[2], Franco Giada[3], Angelo Bartoletti[4], Raffaello Furlan[5], Fabio Quartieri[6], Alfonso Lagi[7], Alessandro Morrione[1], Chiara Mussi[8], Maurizio Lunati[9], Giuseppe De Marchi[10], Tiziana De Santo[11], Niccolò Marchionni[1], and Michele Brignole[12] for the Evaluation of Guidelines in Syncope Study 2 (EGSYS 2) group[†]

Eur Heart J 2010

Early and late outcome of treated patients referred for syncope to emergency department: the EGSYS 2 follow-up study

Table 2 Mortality predictors in univariate analyses

Variable	Univariate		
	P-value	HR	CI
Age	<0.0001	1.07	1.04–1.11
Trauma	0.018	2.24	1.15–4.35
Heart disease and/or abnormal ECG	<0.0001	5.57	2.31–13.41
Sex (male)	0.030	2.25	1.08–4.68
Hypertension	0.002	2.97	1.48–5.96
Diabetes	0.808	1.16	0.36–3.78
Presyncope	0.180	0.49	0.17–1.39
Number of previous syncope[a]	0.041	0.73	0.54–0.99
Specific syncope treatment	0.030	2.25	1.08–4.69
Absence of prodrome	0.411	1.34	0.67–2.69
Palpitations before syncope	0.908	1.13	0.15–8.22
Supine syncope	0.209	2.50	0.60–10.42

[a] χ^2 for linear trend <0.05.

Ungar A et al, Eur Heart J 2010, in press

Early and late outcome of treated patients referred for syncope to emergency department: the EGSYS 2 follow-up study

Long term mortality

Syncope in those **with structural heart disease** triples probability of death **[OR 3.0 (95% CI 1–10)].**

The **outcome of arrhythmic syncope**, instead, is more favourable and **not different** from the syncope forms usually considered as benign such as neurally mediated and orthostatic hypotension

Figure 1 Kaplan–Meier's survival curves in the different syncope forms. Log rank $P = 0.0012$.

Ungar A et al, Eur Heart J 2010, in press

Diagnosis and Characteristics of Syncope in Older Patients Referred to Geriatric Departments

Andrea Ungar, MD, PhD,[†] Chiara Mussi, MD, PhD,[‡] Attilio Del Rosso, MD,[§] Gabriele Noro, MD,[‖] Pasquale Abete, MD, PhD,[¶] Loredana Ghirelli, MD,[#] Tommaso Cellai, MD,[*†] Annalisa Landi, MD,[*†] Gianfranco Salvioli, MD,[‡] Franco Rengo, MD,[¶] Niccolò Marchionni, MD,[*†] and Giulio Masotti, MD,[*†] for the Italian Group for the Study of Syncope in the Elderly*

Gruppo Italiano Sincope (GIS) – Italian Geriatric Society

Table 2. Main Demographic and Clinical Characteristics in the Whole Series and by Age Group

Characteristic	All (N = 231)	65–74 (n = 71)	≥75 (n = 160)	P-value*
Age, mean ± SD	79 ± 7	71 ± 3	82 ± 5	
Female,				.33
Body ma				.005
Drugs, m				<.001
Cumulati				.003
Activities				.03
Instrume				.001
Mini-Men				<.001
Geriatric				.45
Syncope,				.24
Falls, n (%)	147 (64)	55 (77)	92 (56)	.10
Fractures, n (%)	26 (11.2)	9 (12.6)	17 (10.6)	.35

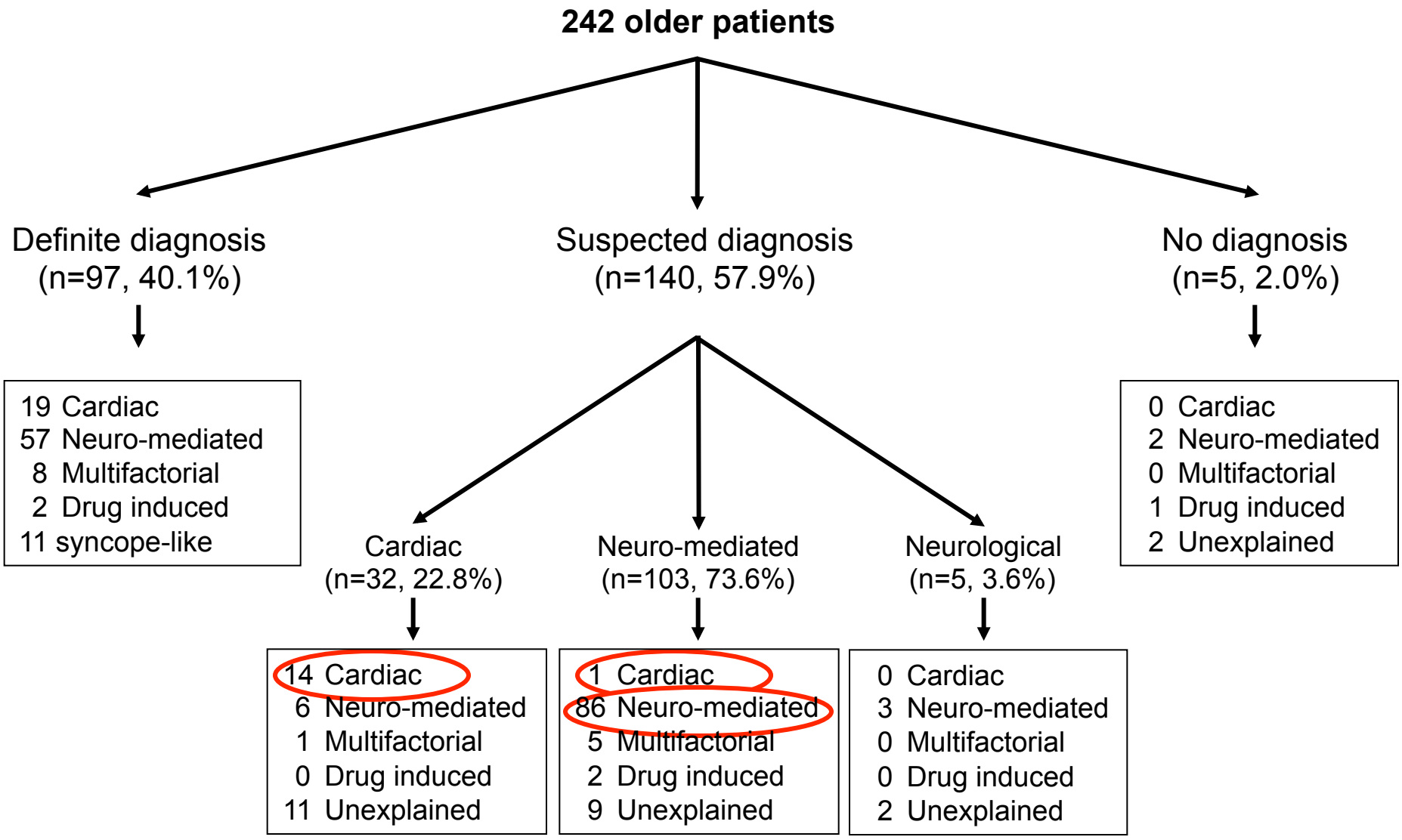
231 Older patients referred to Geriatric Deparments

Medium age 79±7 years

160 patients >75 years old

J Am Geriatr Soc 2006: 54: 1531-1536

Results of diagnostic protocol



Ungar A, et al. JAGS 2006

EAMA
European Academy for Medicine of Ageing

Role of Early Symptoms in Assessment of Syncope in Elderly People: Results from the Italian Group for the Study of Syncope in the El

Gianluigi Ga
Alessandro M
Francesco Ca
Niccolò Mar

), MD,[1]

Table 3. Multivariate Regression Analysis of Different Symptoms of Noncardiac and Cardiac Syncope, Adjusted for Age and Sex

	Noncardiac	Cardiac
Symptom	Odds Ratio (95% Confidence Interval)	
Nausea	3.7 (1.26–11.2)	0.2 (0.05–1.06)
Blurred vision	3.5 (1.34–9.59)	0.1 (0.01–0.77)
Sweating	2.8 (1.21–6.89)	0.1 (0.04–0.73)
Awareness of being about to faint	2.1 (1.04–4.49)	0.2 (0.09–0.81)
Abdominal discomfort	2.[illegible] (0.49–[illegible]3)	[illegible] (0.05–3.[illegible])
Dyspnea	0.3 (0.06–1.73)	5.5 (1.0–30.21)
Pallor	1.7 (0.49–6.37)	[illegible] (0.04–2.38)
Feeling warm	1.1 (0.22–5.56)	0.8 (0.10–6.93)
Palpitations	0.9 (0.19–5.19)	0.7 (0.09–6.58)
Weakness	0.9 (0.43–1.96)	1.8 (0.77–4.31)
[illegible]hest pain	0.2 (0.05–1.43)	4.0 (0.65–25.7)

EAMA
European Academy for Medicine of Ageing

Two-years morbidity and mortality of elderly patients with syncope

The GIS Follow-up study

Table 1. Main demographic and clinical characteristics in the whole series and by stratified for age

Variables	All (n = 215)	65–69 years (n = 25)	70–79 years (n = 90)	80–89 years (n = 86)	≥90 years (n = 14)	P for trend
Age (years)	78.7 ± 6.8	67.0 ± 1.3	75.1 ± 2.4	83.1 ± 2.7	92.0 ± 2.6	<0.001
Female (n, %)	124 (57.7)	17 (68.0)	48 (53.3)	52 (60.5)	7 (50.0)	0.494 (NS)
BMI (kg/m^2)	25.0 ± 3.4	26.2 ± 4.4	25.6 ± 3.7	24.2 ± 2.7	24.5 ± 2.2	<0.005
Drugs (n)	3.4 ± 2.7	2.2 ± 2.3	3.4 ± 2.2	3.6 ± 2.7	6.5 ± 3.8	0.009
Hospitalisations (n, %)	79 (36.7)	12 (46.1)	35 (39.3)	28 (32.6)	4 (5.1)	0.023
Mortality (n, %)	38 (17.7)	0 (0)	13 (14,4)	19 (22.1)	6 (42.9)	0.006
Syncope recurrence (n, %)	70 (32.6)	7 (27.7)	25 (27.8)	32 (37.0)	6(42.8)	0.008
Fractures (n, %)	24 (11.1)	3 (15.8)	9 (16.1)	9 (17.0)	3 (33.3)	0.420 (NS)
Hospitalisations (n, %)	79 (36.7)	12 (46.1)	35 (39.3)	28 (32.6)	4 (5.1)	0.023
Mortality (n, %)	38 (17.7)	0 (0)	13 (14,4)	19 (22.1)	6 (42.9)	0.006
Syncope recurrence (n, %)	70 (32.6)	7 (27.7)	25 (27.8)	32 (37.0)	6(42.8)	0.008

BMI, body mass index; CIRS, Cumulative Illness Rating Scale; BADL, basic activity daily living; IADL, instrumental activity daily living; MMSE, Mini-Mental State Examination; GDS, Geriatric Depression Scale.

Ungar A et al, Age and ageing 2011

Two-years morbidity and mortality of elderly patients with syncope

The GIS Follow-up study

Variables	Death		*P*-value
	Yes ($n = 37$)	No ($n = 178$)	
Age (years)	83 ± 5	77 ± 7	<0.001
Female (n, %)	18 (48.6)	106 (59.5)	0.07 (NS)
BMI (kg/m^2)	23.4 ± 3.0	25.4 ± 3.4	0.02
Drugs (n)	4.2 ± 2.2	3.2 ± 2.2	<0.01
CIRS (n)	9.1 ± 3.1	6.7 ± 3.3	<0.001
BADL lost (n)	0.7 ± 0.8	0.5 ± 1.0	0.399 (NS)
IADL lost (n)	2.6 ± 2.7	1.7 ± 2.9	0.198 (NS)
MMSE (n)	25.1 ± 4.0	27.2 ± 3.7	0.007
GDS (n)	2.8 ± 2.3	3.8 ± 3.8	0.163 (NS)
Falls (n, %)	22 (59.4)	115 (64.6)	0.926 (NS)
Fractures (n, %)	10 (27.0)	27 (15.1)	0.233 (NS)
Hospitalisations	8 (21.6)	71 (39.8)	<0.001

Ungar A et al, Age and ageing 2011

Two-years morbidity and mortality of elderly patients with syncope

The GIS Follow-up study

Variables	Syncope recurrence		*P*-value
	Yes ($n = 70$)	No ($n = 145$)	
Age (years)	77 ± 6	77 ± 6	0.356 (NS)
Female (n, %)	39 (55.7)	85 (58.6)	0.749 (NS)
BMI (kg/m^2)	25.2 ± 2.7	25.6 ± 3.7	0.386 (NS)
Drugs (n)	3.2 ± 2.2	3.4 ± 2.3	0.634 (NS)
CIRS (n)	7.0 ± 2.8	6.5 ± 3.3	0.704 (NS)
BADL lost (n)	0.8 ± 1.2	0.3 ± 0.8	<0.01
IADL lost (n)	2.3 ± 3.6	1.0 ± 2.5	0.042
MMSE (n)	26.0 ± 4.0	27.7 ± 2.8	<0.01
GDS (n)	3.8 ± 4.2	3.8 ± 3.6	0.265 (NS)
Falls (n, %)	46 (65.7)	92 (63.4)	0.688 (NS)
Fractures (n, %)	13 (18.5)	20 (13.7)	0.596 (NS)
Hospitalisations	24 (34.2)	55 (37.9)	<0.01

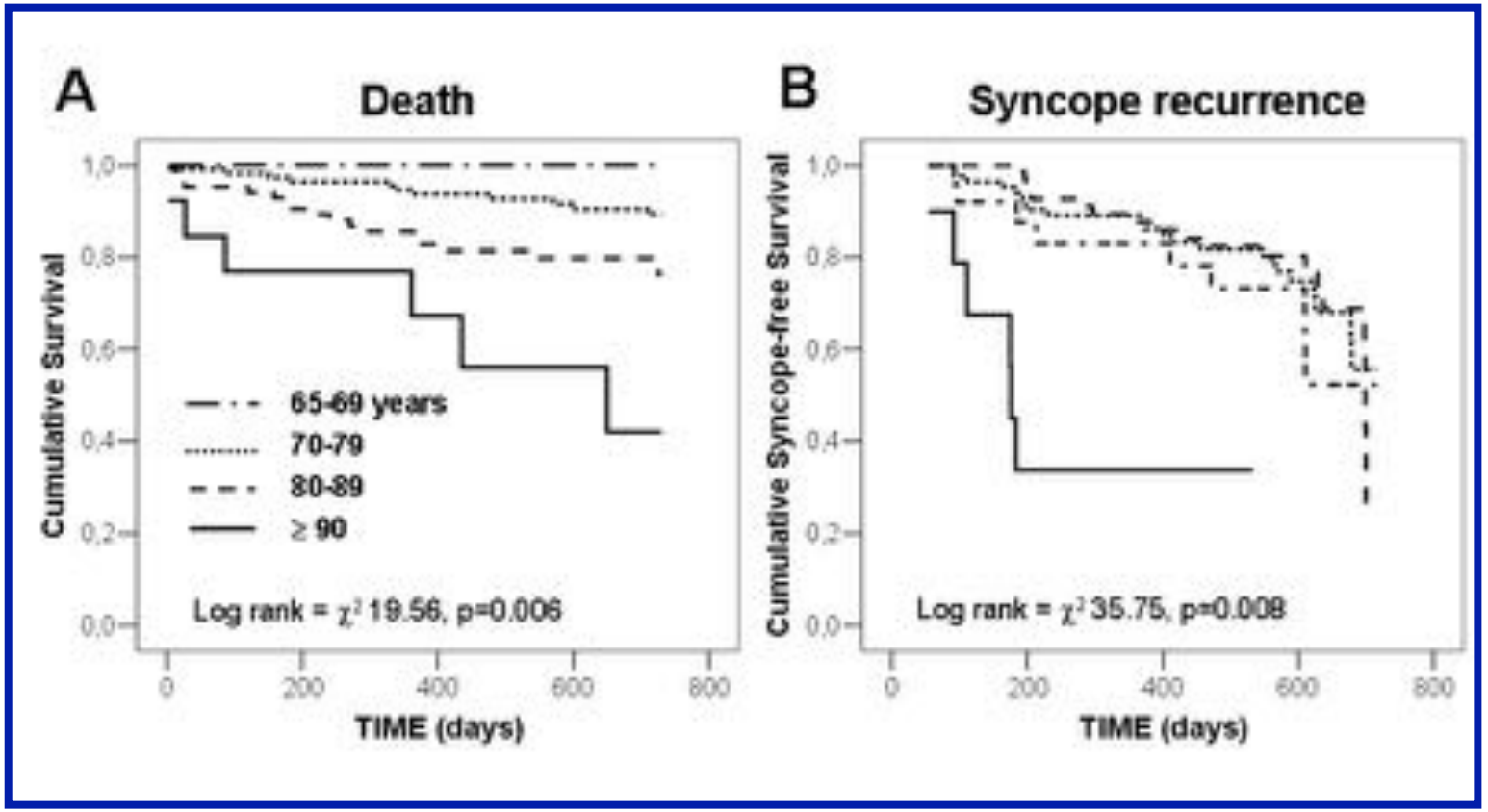
Ungar A et al, Age and ageing 2011

Two-years morbidity and mortality of elderly patients with syncope

The GIS Follow-up study

Ungar A et al, Age and ageing 2011

Age

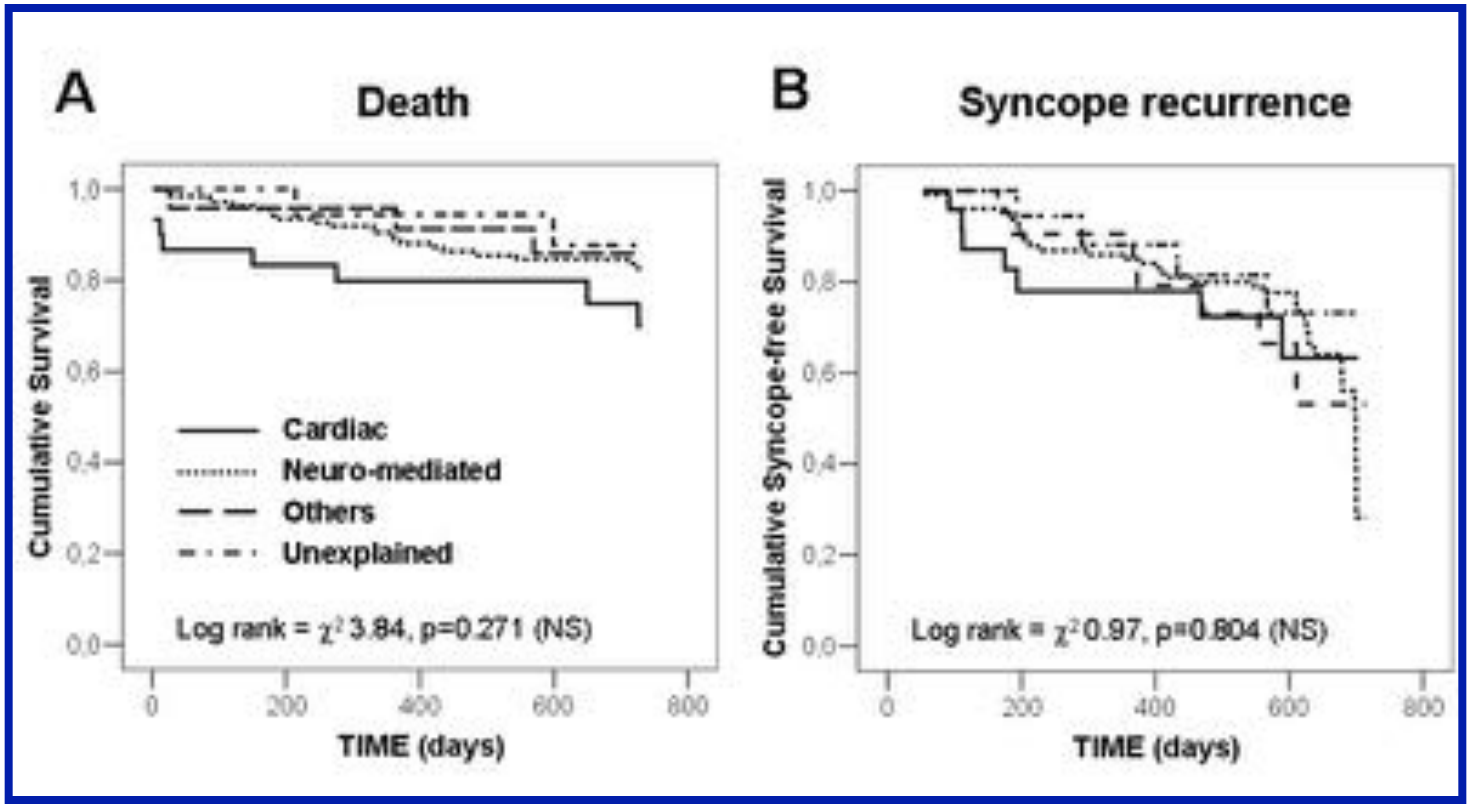


Two-years morbidity and mortality of elderly patients with syncope

The GIS Follow-up study

Ungar A et al, Age and ageing 2011

Type of syncope



Two-years morbidity and mortality of elderly patients with syncope

The GIS Follow-up study

Mean percentage incidence of depressed patients (GDS score ≥6) increased from 28.3% at baseline to 41.4% (P <0.001)

Ungar A et al, Age and ageing 2011

Europace (2014) 16, 928–934
doi:10.1093/europace/eut283

Clinical context and outcome of carotid sinus syndrome diagnosed by means of the 'method of symptoms'

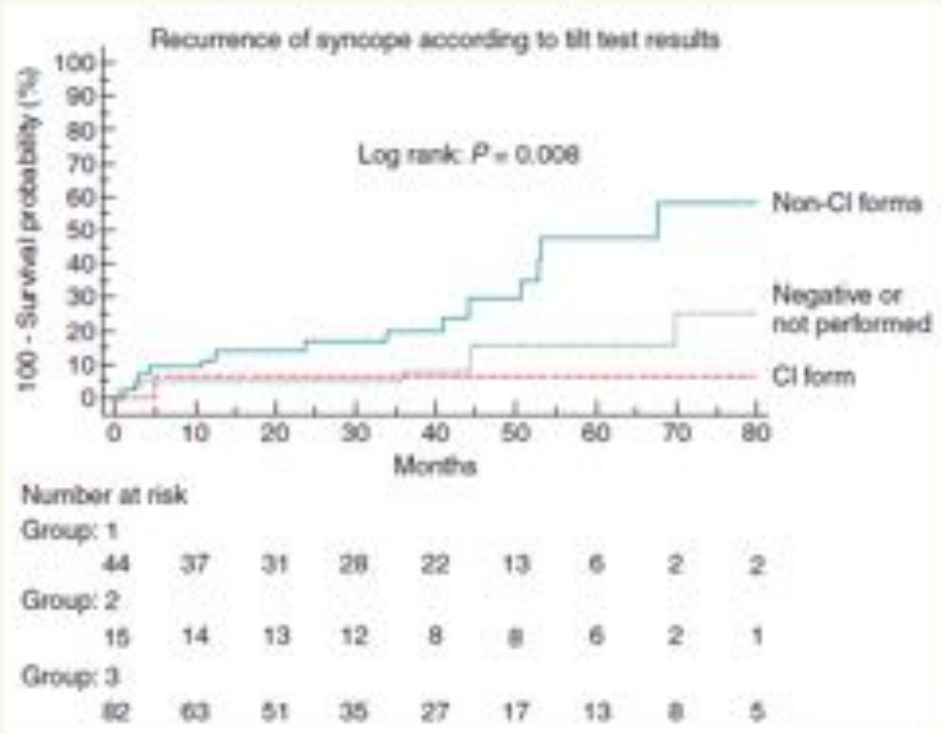
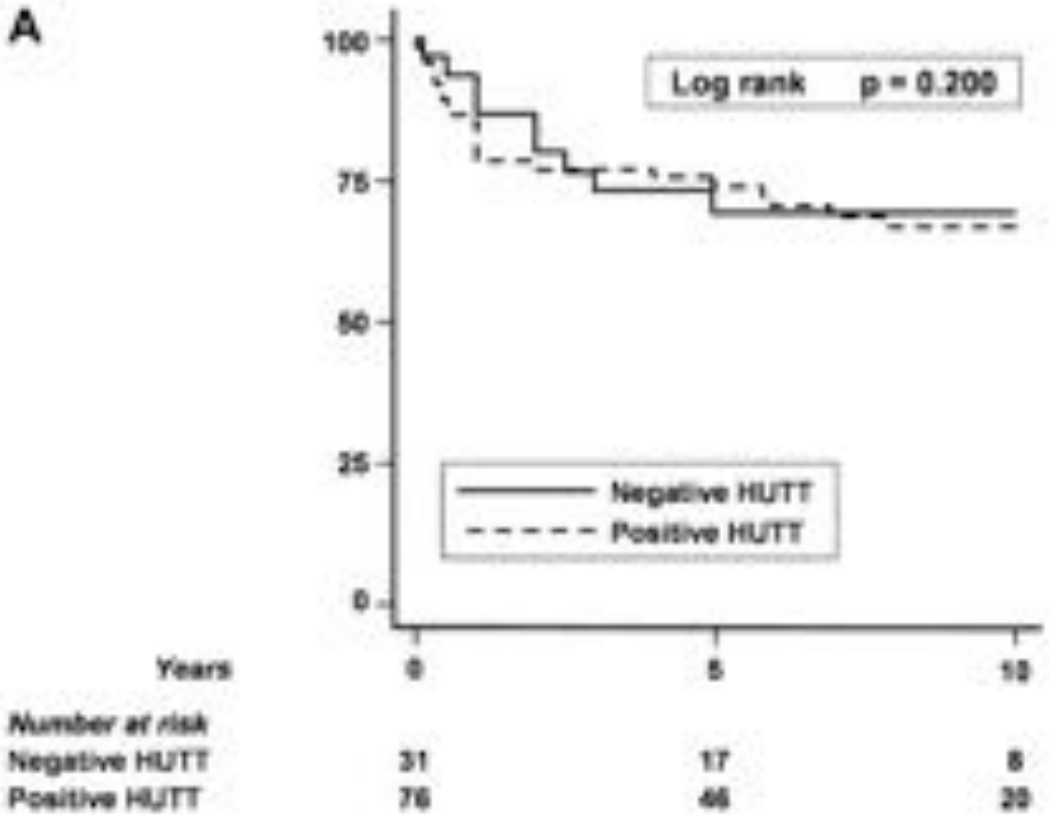


Figure 2 Recurrence of syncope according to tilt test results.

Diana Solari, Roberto Maggi, Daniele Oddone, Alberto Solano, Francesco Croci, Paolo Donateo, and Michele Brignole*

Long-Term Follow-Up of Patients with Syncope Evaluated by Head-Up Tilt Test

Freedom from syncope:



Ann Noninvasive Electrocardiol 2010;15(2):101–106

Europace (2014) 16, 1379–1383
doi:10.1093/europace/eut402

Evaluation of the current prognostic role of heart diseases in the history of patients with syncope

Filippo Numeroso[1]*, Gianluigi Mossini[1], Giuseppe Lippi[2], and Gianfranco Cervellin[1]

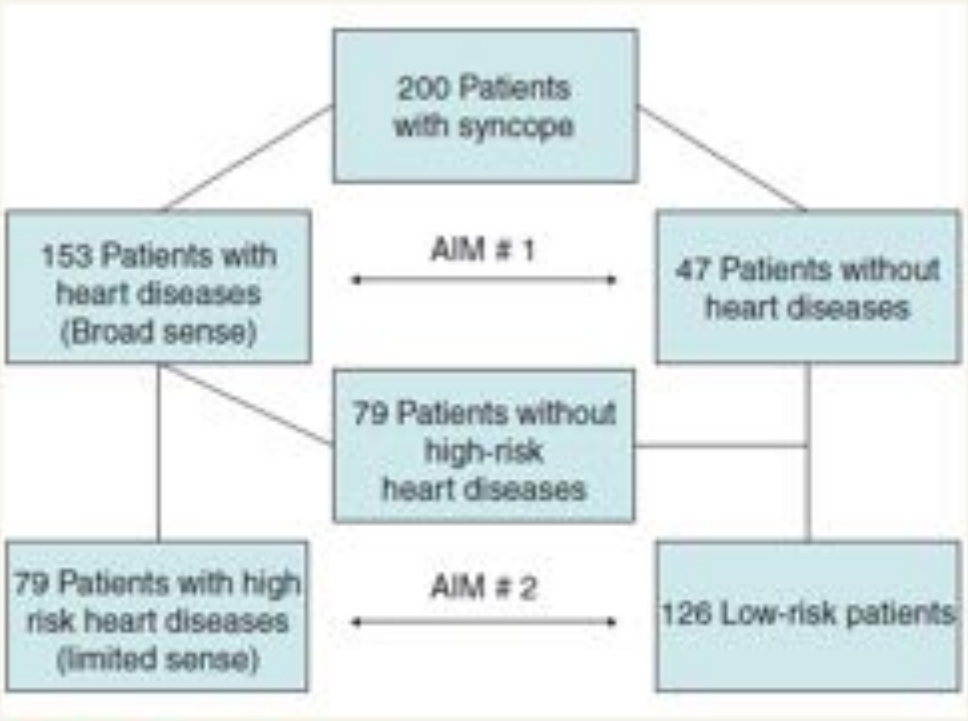


Figure 1 Study flow chart.

Europace (2014) 16, 1379–1383
doi:10.1093/europace/eut402

CLINICAL RESEARCH
Syncope and event loop recorders

Evaluation of the current prognostic role of heart diseases in the history of patients with syncope

Filippo Numeroso[1]*, Gianluigi Mossini[1], Giuseppe Lippi[2], and Gianfranco Cervellin[1]

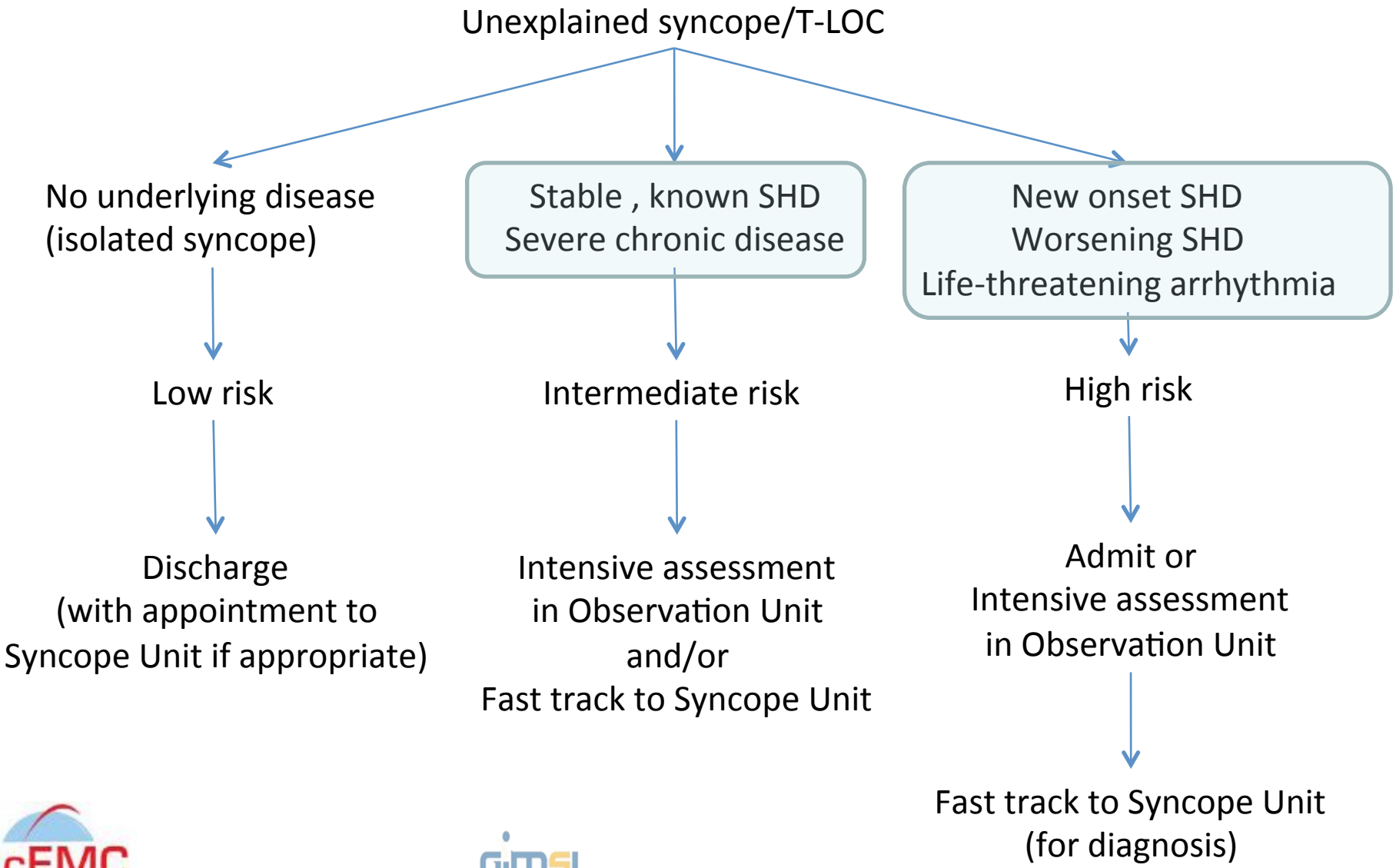
Table 4 Multivariate logistic regression analysis for short- and long-term outcomes

	Variables	OR	95% CI		SE	z	P value
Short							0.766
							0.026
							0.225
							0.001
							0.005
							0.794
Long							0.112
							0.116
							0.227
	Age	0.960	0.928	0.991	0.016	−2.46	0.014
	Age^2	1.000	1.000	1.001	0.000	2.49	0.013
	Drugs	0.648	0.155	2.700	0.471	−0.6	0.552

OR, odds ratio; SE, standard error; z, z value (test of statistical significance).

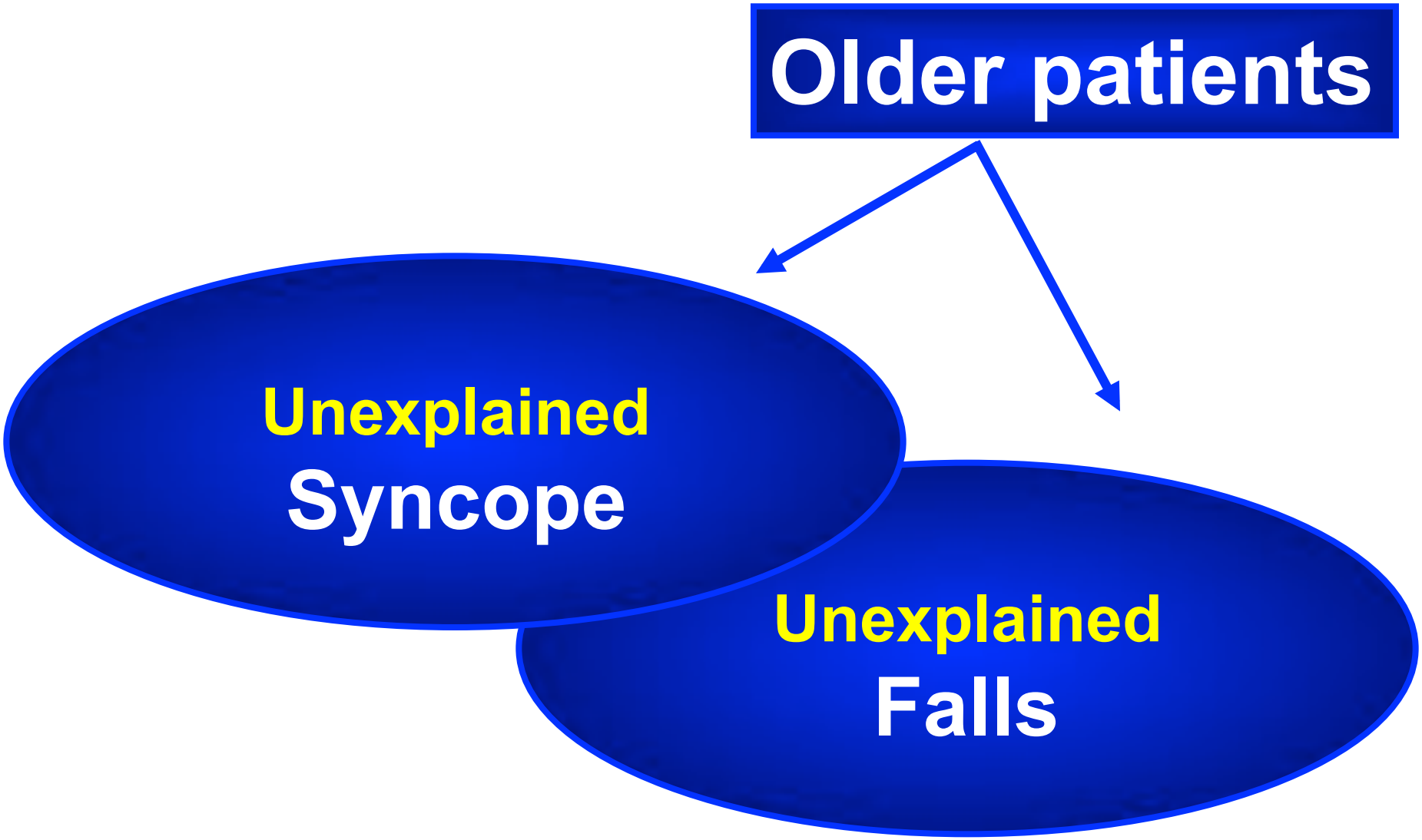
We recommend that emergency department physicians adopt a strict definition of heart diseases considered at risk to promptly identify all patients at risk for serious events, while avoiding an excessive hospitalization

Risk stratification for syncope which remains unexplained after the initial evaluation in ED



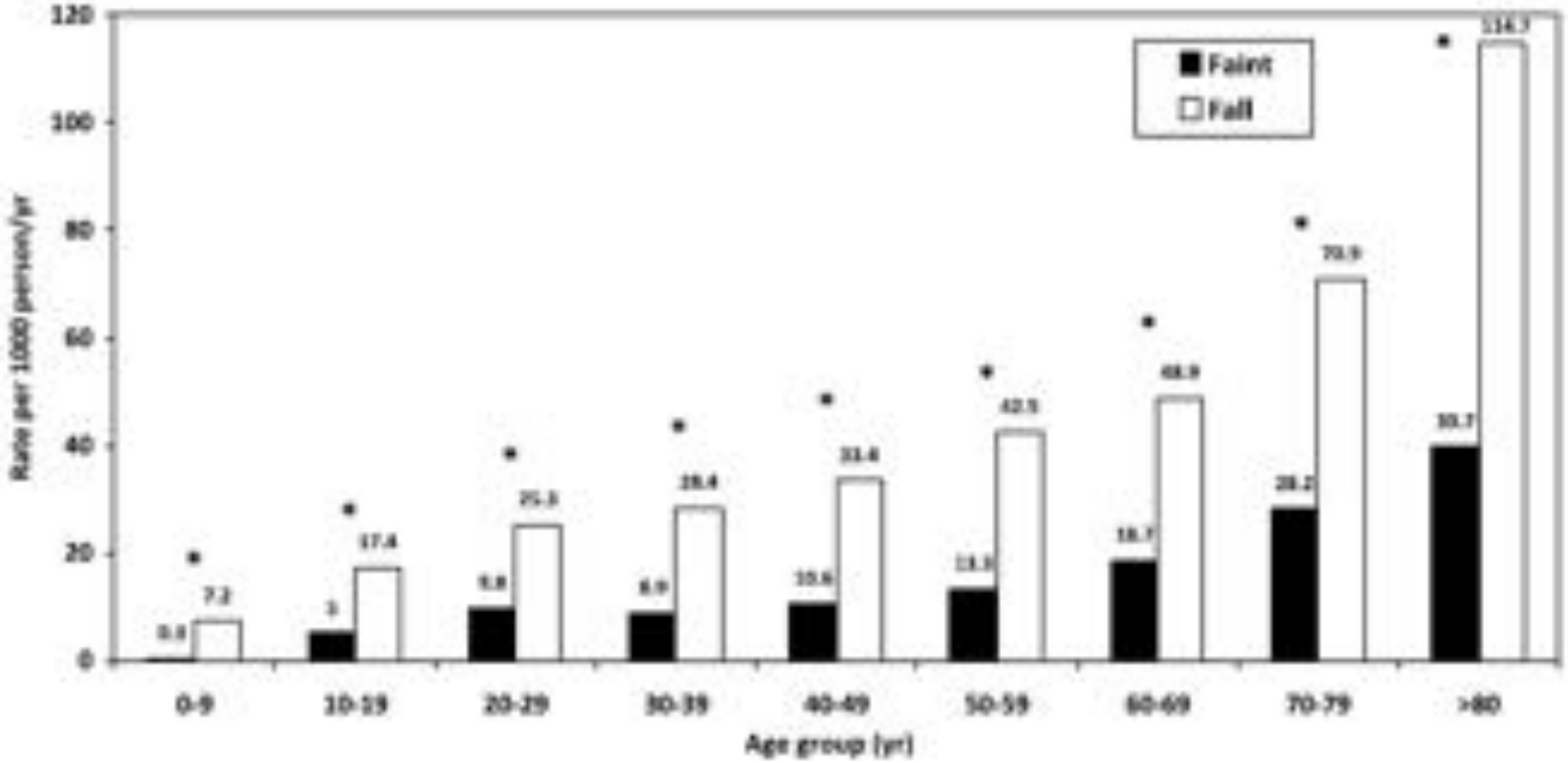
AcEMC
Academy of Emergency Medicine and Care

GIMSI
Gruppo Italiano Multidisciplinare per lo Studio della Sincope


Older patients
Unexplained
Syncope
Unexplained
Falls

The Prevalence and Cost of the Faint and Fall Problem in the State of Utah

GANGADHAR MALASANA, M.D.,* MICHELE BRIGNOLE, M.D.,*,†
MARCOS DACCARETT, M.D.,* RANDALL SHERWOOD,*
and MOHAMED H. HAMDAN, M.D.*
From the *University of Utah, Medical Center, Salt Lake City, Utah; and †Ospedali del Tigullio, Lavagna, Italy



PACE 2011; 34:278–283

Morbidity and Mortality and falls in the elderly

- 5-10 % major injury
- 6% fractures

→ Increased risk of Istituzionalization

(Tinetti et. Al, NEJM 1997)

- 1% hip fracture

→ 20-30 % one year mortality

- 30-73% with depressive syndrome and fear of falling after fall

Falls and institutionalization

Variables	1 fall no injury	>1 falls	falls and injury
	Hazard Ratio (95% CI)		
Fall	4.9 (3.2-7.5)	8.5 (3.4-21.2)	19.9 (12.2-32.6)
Fall+ Age and gender	4.2 (2.7-6.6)	7.1 (2.8-17.7)	16.6 (10.0-27.6)
fall+ CGA	3.1 (1.9-4.9)	5.5 (2.1-14.2)	10.2 (5.8-17.9)

CGA= comprehensive geriatric assessment

Tinetti ME et al, NEJM 1997

Type of fall:

Accidental:

in clear accidental conditions (slip or trip)

Medical:

Related to specific medical conditions (hypoglycemia, transient ischemic attack, drop-attack, myocardial infarction, arrhythmias, orthostatic hypotension)

Related to dementia:

in patients with moderate-severe dementia (MMSE <20/30)

Unexplained:

Not accidental nor related to other clinical conditions

Unexplained fall in older patients, UFO, Mussi c. et al 2013

Heart

The different clinical presentations of vasovagal syncope

Paolo Alboni

Table 1 Possible clinical presentations of VVS

	Diagnostic criteria
Typical VVS* (classical VVS)	TLoC triggered by emotional distress or orthostatic stress, associated with symptoms due to autonomic activation
Atypical VVS* (non-classical VVS, atypical reflex syncope, atypical neurally mediated syncope, neurocardiogenic syncope)	TLoC not preceded by any evident trigger, but triggered by a non-spontaneous orthostatic trigger (tilt testing), in the absence of any competing diagnosis
Unexplained fall	Unexplained fall with positive tilt testing, in the absence of any competing diagnosis
Syncope during sleeping hours* (sleep syncope)	TLoC in the absence of any trigger, preceded by autonomic prodromes occurring during the sleeping hours (supine position), after exclusion of a potential cause of cardiac syncope

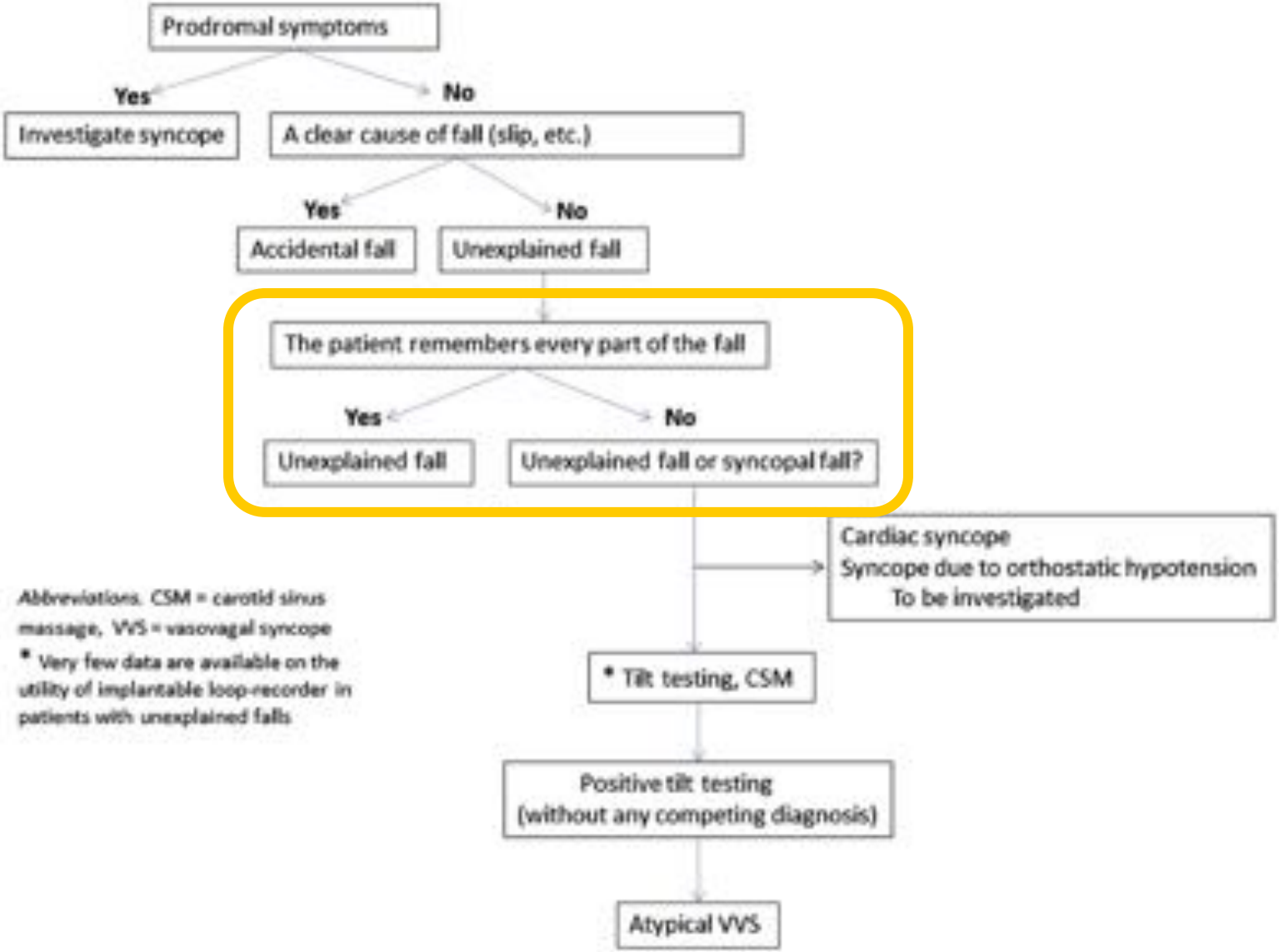
*Other terms used in the literature are reported in brackets.
TLoC, transient loss of consciousness; VVS, vasovagal syncope.

Alboni P. *Heart* 2015;**101**:674–678.

Heart

The different clinical presentations of vasovagal syncope

Paolo Alboni



Alboni P. *Heart* 2015;**101**:674–678.

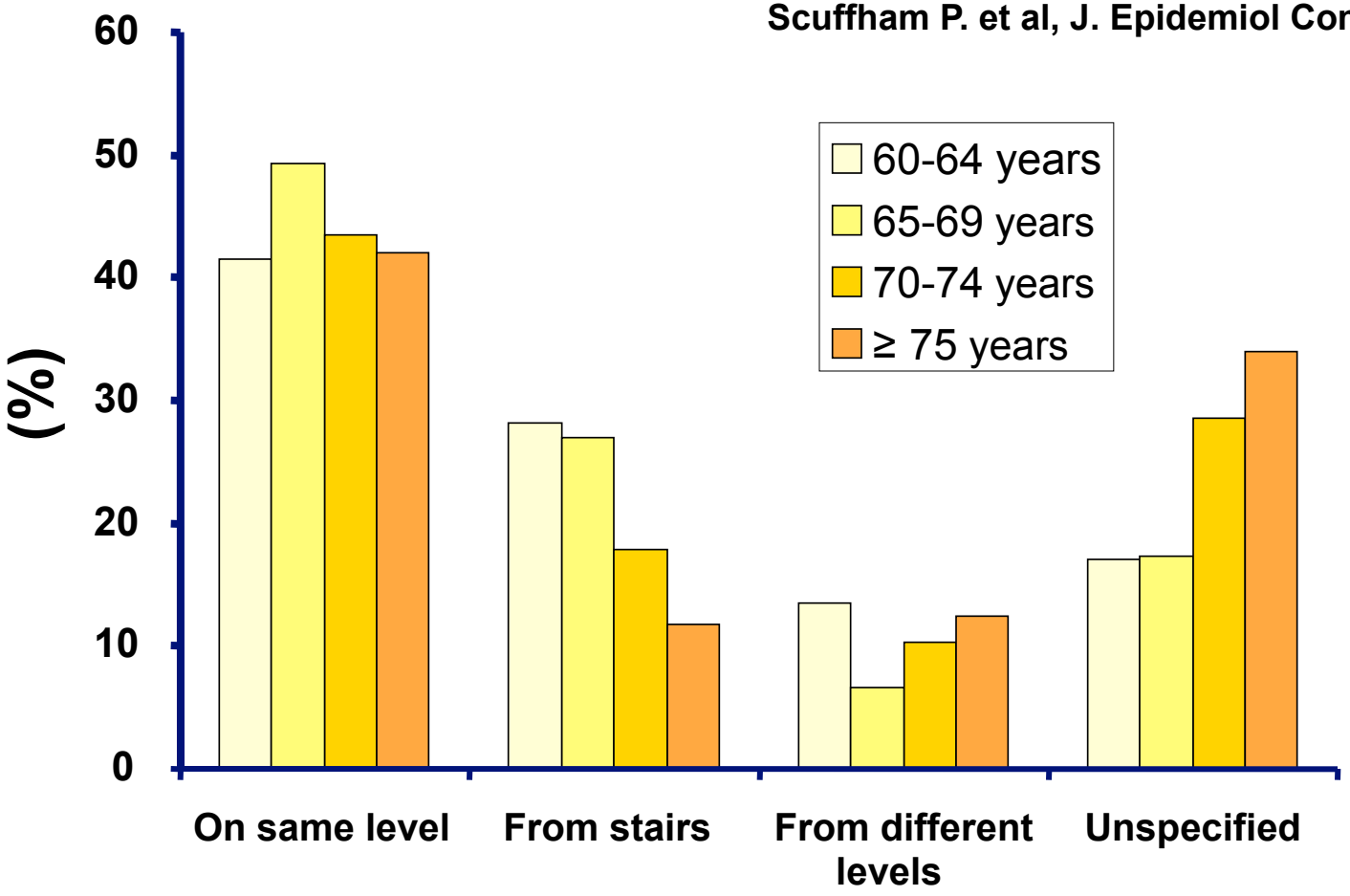
Unexplained falls are frequent in patients with fall-related injury admitted to orthopaedic wards: the **UFO study** (Unexplained Falls in Older patients).

	All (n=246)	**65-79 years (n=79)**	**≥ 80 years (n=167)**	**p**
Accidental (%)	99 (40.2)	38 (48.1)	61 (36.5)	0.02
Medical (%)	25 (10.2)	7 (8.9)	18 (10.8)	n.s.
Dementia-related (%)	31 (12.6)	5 (6.3)	26 (15.6)	0.02
Unexplained (%)	**91 (37.0)**	**29 (36.7)**	**62 (37.1)**	**n.s.**

Unexplained fall in older patients, UFO, Mussi c. et al 2013

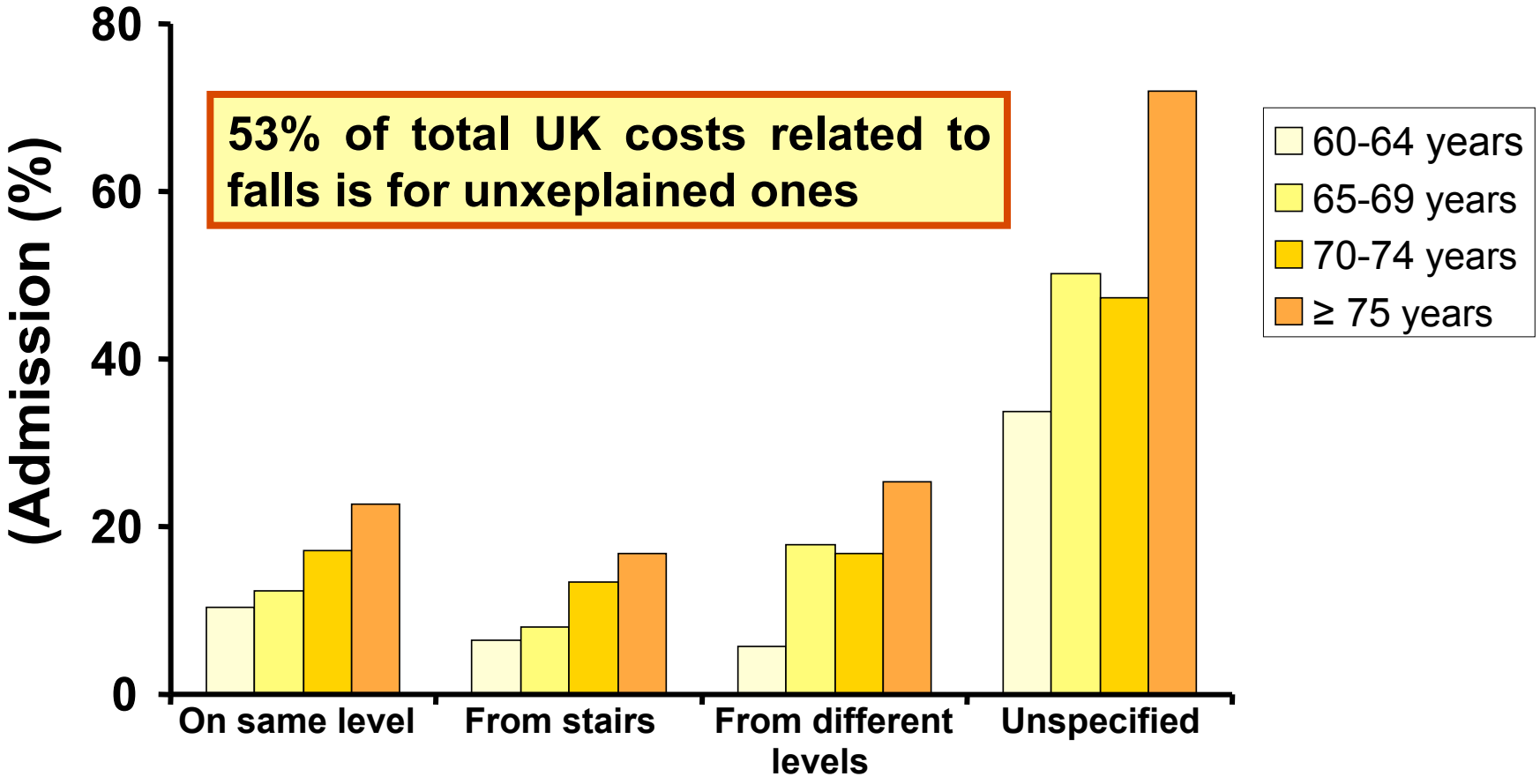
Accident and Emergency department attendance in United Kingdom in 1999 for falls: type of falls by age groups in patients ≥ 60 years old (n=647.721)

Scuffham P. et al, J. Epidemiol Community Health 2003



Accident and Emergency department attendance in United Kingdom in 1999 for falls: admission by age groups in patients ≥ 60 years old (n=647.721)

Scuffham P. et al, J. Epidemiol Community Health 2003



Thank you for your attention