Il Disturbo Neurologico Funzionale Acuto

Michele Tinazzi

Dipartimento di Neuroscienze,
Biomedicina e Movimento
Università di Verona

Review

Decade of progress in motor functional neurological disorder: continuing the momentum

David L Perez [1], Mark J Edwards,[2] Glenn Nielsen,[2] Kasia Kozlowska,[3] Mark Hallett [4], W Curt LaFrance, Jr [5]

Nuovi concetti

1) MODELLO DI MALATTIA

2) TERMINOLOGIA

3) APPROCCIO CLINICO

4) GESTIONE

Introduzione

I disturbi neurologici funzionali (FND) includono i disturbi motori funzionali (FMD), crisi non epilettiche (PNES), disturbi sensitivi, visivi, ed altri meno comuni.

FND: prevalenza 50-75/100.000

Spesa sanitaria per pazienti con FND > 1,2 miliardi di dollari per anno (comparabile ad altre patologie neurologiche semi-intensive) con costi annuali crescenti per quanto riguarda l'accesso a reparti di Emergenza e cure ospedaliere (indagini, trattamenti farmacologici, psichiatrici e riabilitativi)

JAMA Neurol. 2021;78(1):88-101. doi:10.1001/jamaneurol.2020.3753

Research

JAMA Neurology | Original Investigation

Assessment of Emergency Department and Inpatient Use and Costs in Adult and Pediatric Functional Neurological Disorders

Christopher D. Stephen, MB ChB, MRCP(UK), MS; Vicki Fung, PhD; Codrin I. Lungu, MD; Alberto J. Espay, MD, MSc

IMPORTANCE There is limited information about health care use and costs in patients with functional neurological disorders (FNDs).

OBJECTIVE To assess US emergency department (ED) and inpatient use and charges for FNDs.

DESIGN, SETTING, AND PARTICIPANTS This economic evaluation used Healthcare Cost and Utilization Project data to assess all-payer (1) adult (age, ≥18 years) hospitalizations (2008-2017), (2) pediatric (age, 5-17 years) hospitalizations (2003, 2006, 2009, 2012, and 2016), and (3) adult and pediatric ED evaluations (2008-2017). *International Classification of Diseases, Ninth Revision, Clinical Modification* code 300.11 (conversion disorder) or 306.0 (musculoskeletal malfunction arising from mental factors) and *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Clinical Modification* codes for conversion disorder/functional neurological symptom disorder (F44.4 to F44.7) were used to conservatively define FNDs and to compare them with other neurological disorders that are associated with high levels of health care use. Analysis was performed between January 2019 and July 2020.

MAIN OUTCOMES AND MEASURES Admission traits (eg, demographic characteristics of patients, length of stay, and discharge disposition) and hospital charges.

RESULTS Compared with other neurological disorders in 2017, emergency FND evaluations of 36 359 adults (25 807 women [71.0%] and 3800 children (2733 girls [71.9%]) more frequently resulted in inpatient admissions (22 895 adult admissions [69.2% female] and 1264 pediatric admissions [73.4%]). These FND admissions had a shorter mean (SEM) hospital length of stay (5.21 [0.15] days vs 6.03 [0.03] days, $P < .001$) but higher workup rates than admissions for comparable neurological diagnoses. Admissions for FNDs had low rates of inpatient physical therapy, occupational therapy, speech and language pathology, and psychiatric consultation. The total annual costs (a proxy for total costs in 2017 US dollars) were $1066 million (95% CI, $971-$1160 million) for adult FND inpatient charges in 2017 compared with $1241 million (95% CI, $1132-$1351 million) for anterior horn cell disease; $75 million (95% CI, $57-$92 million) for pediatric FND inpatient charges in 2012 compared with $86 million (95% CI, $63-$108 million) for demyelinating diseases; and $163 million (95% CI, $144-$182 million) for adult and pediatric ED visits in 2017 compared with $135 million (95% CI $111-$159 million) for refractory epilepsy. Total charges per admission for ED care of FNDs were higher than the other comparison groups in adults. Total costs and costs per admission for FNDs increased from 2008 to 2017 at a higher rate than that of other neurological disorders.

CONCLUSIONS AND RELEVANCE This economic evaluation found that the more than $1.2 billion and increasing annual costs for ED and inpatient care of FNDs were similar to other investigation-intensive and pharmacologically demanding neurological disorders. Unnecessary investigations and iatrogenic harm inflate costs at the expense of necessary but neglected psychiatric and rehabilitative treatments.

Introduzione

Gli FMD rappresentano > 50% degli FND e comprendono paresi, tremore, distonia, disturbi della marcia, mioclono, disturbi facciali.

FMD: 20% dei pazienti che accedono agli ambulatori Disordini del Movimento

Eta' media: 47 anni

F/M: 70/30 %

Questi disturbi sono clinicamente **incongruenti** con quei disturbi motori noti per essere causati da malattie neurologiche e sono significamente **modificati** da manovre di distrazione (**inconsistenza**).

Review

Neurology® Clinical Practice

Psychogenic nonepileptic seizures and movement disorders

A comparative review

Roberto Erro, MD*; Francesco Brigo, MD*; Eugen Trinka, MD; Giulia Turri, MD; Mark J. Edwards, MRCP†; Michele Tinazzi, MD, PhD‡

Abstract

Purpose of review: Neurologic symptoms due to a psychogenic cause are frequently seen in clinical practice. Psychogenic nonepileptic seizures (PNES) and psychogenic movement disorders (PMD) are among the most common psychogenic neurologic disorders. PNES and PMD are usually investigated and managed separately by different neurology subspecialists. We review the main epidemiologic and clinical features of both PNES and PMD, aiming to highlight their similarities and differences and to see whether a common framework for these disorders exists. **Recent findings:** Data from the literature show that there is a profound overlap between PNES and PMD, which would argue for a larger unifying pathophysiology with variable phenotypic manifestations. **Summary:** Collaborative and integrated research among epileptologists, movement disorders experts, psychiatrists, psychologists, and physiotherapists may increase our collective knowledge about the pathophysiologic mechanisms of PNES and PMD and therefore improve outcomes for these patients. *Neurol Clin Pract* 2016;6:138–149

Introduzione

Neurological Sciences
https://doi.org/10.1007/s10072-018-3601-1

ORIGINAL ARTICLE

Movement disorders in emergency settings: a prospective study

Carlo Dallocchio[1] · Angela Matinella[1] · Carla Arbasino[1] · Natale Arno'[1] · Margaret Glorioso[1] · Massimo Sciarretta[1] · Massimiliano Braga[2] · Michele Tinazzi[3]

Received: 8 July 2018 / Accepted: 5 October 2018

Table 1 Patient characteristics

Patient number	96
Mean age (± SD, range)	52.88 (± 21.76, 15–87)
Sex (% males)	45.8
Time of symptoms onset (%)	
≤ 24 h	25 (26.0)
≤ 7 days	35 (36.5)
> 7 days	36 (37.5)
Type of movement disorder (%)[a]	
Hyperkinetic	71 (74.0)
Hypokinetic	25 (26.0)
Mixed	19 (19.8)
Cause of movement disorder (%)	
Drug-induced	28 (29.2)
Psychogenic	19 (19.8)
Neurodegenerative disease	15 (15.6)
Brain lesion	11 (11.5)
Others[b]	23 (24.0)

Table 2 Outcomes according to the conditions underlying the movement disorder

	Good outcome	Unfavorable course[a]
Clinical groups (%)		
Functional	9 (13.2)	10 (35)*
Drugs	21 (30.9)	7 (25)
Neurodegenerative disease	14 (20.6)	1 (4)**
Structural anomalies	7 (10.3)	4 (14)
Others	17 (25.0)	6 (21)
Total	68 (100.0)	28 (100.0)
Time of onset		
< 24 h	20 (29.4)	6 (21.4)
≤ 7 days	27 (39.7)	7 (25.0)
> 7 days	21 (30.9)	15 (53.6)
Total	68 (100.0)	28 (100.0)

Introduzione

Gli FMD determinano un livello di disabilità e una riduzione della qualità della vita paragonabile ai pazienti con Malattia di Parkinson e con un costo socio-assistenziale rilevante.

JNNP 2011

Disability, distress and unemployment in neurology outpatients with symptoms 'unexplained by organic disease'

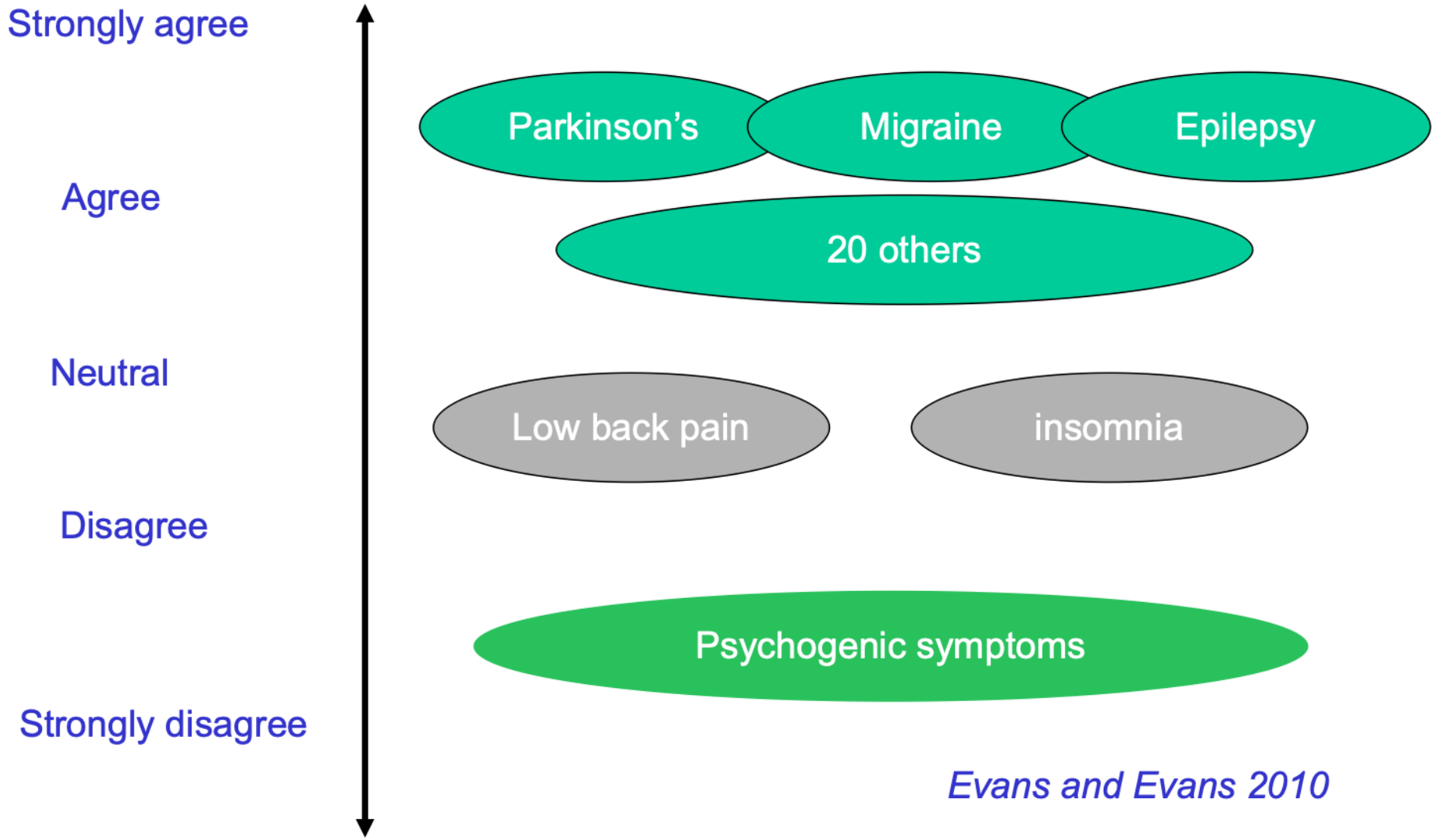
A Carson,[1] J Stone,[1] C Hibberd,[1] G Murray,[2] R Duncan,[3] R Coleman,[4] C Warlow,[1] R Roberts,[5] A Pelosi,[6] J Cavanagh,[7] K Matthews,[5] R Goldbeck,[4] C Hansen,[1] M Sharpe[1]

Movement Disorders
Vol. 22, No. 15, 2007, pp. 2204–2209

Impact of Psychogenic Movement Disorders Versus Parkinson's on Disability, Quality of Life, and Psychopathology

Karen E. Anderson, MD,[1,2]* Ann L. Gruber-Baldini, PhD,[3] Christopher G. Vaughan, PhD,[1] Stephen G. Reich, MD,[1] Paul S. Fishman, MD, PhD,[1] William J. Weiner, MD,[1] and Lisa M. Shulman, MD[1]

I like to treat patients with this disorder……..(94 US neurologists)



Evans and Evans 2010

Il grado di ***soddisfazione*** provato nel trattare i disturbi neurologici funzionali è risultato essere il **più basso**, seguito da lombalgia cronica e insonnia

Journal of Neurology
https://doi.org/10.1007/s00415-021-10840-y

ORIGINAL COMMUNICATION

Opinion, knowledge, and clinical experience with functional neurological disorders among Italian neurologists: results from an online survey

Michele Tinazzi[1] · Mirta Fiorio[1] · Alfredo Berardelli[2] · Bruno Bonetti[3] · Domenico Marco Bonifati[4] · Alessandro Burlina[5] · Annachiara Cagnin[6,7] · Francesca Calabria[3] · Maurizio Corbetta[6,8] · Pietro Cortelli[9,10] · Bruno Giometto[11] · Silvia Vittoria Guidoni[4] · Leonardo Lopiano[12] · Gianluigi Mancardi[13,14] · Fabio Marchioretto[15] · Maria Pellegrini[11] · Francesco Teatini[16] · Gioacchino Tedeschi[17] · Lucia Tesolin[16] · Emanuele Turinese[5] · Mario Zappia[18] · Angela Marotta[1]

Results The term "Functional neurological disorders" in reference to FND was used more frequently than other psychological (e.g., psychogenic or conversion), or descriptive terms (e.g., non-organic or stress-related). When speaking with patients, the respondents stated that they preferred explaining symptoms based on abnormal functioning of the nervous system than discussing mental illness and that they would refer their patient to a psychologist rather than to a psychiatrist. Few considered physiotherapies and psychiatric interventions are a useful approach to treating FND. Some believed that patients simulate their symptoms.

Introduzione

FMD hanno caratteristiche che sono normalmente associate al movimento volontario (distraibilità e risoluzione con placebo). Questo ha indotto erroneamente i neurologi a pensare che la simulazione è il meccanismo alla base della genesi degli FMD.

Tuttavia i pazienti riportano tali disturbi come involontari e incontrollati. La dissociazione tra la natura volontaria degli FMD e il senso di involontarietà percepito dai pazienti è determinata da una alterato ***sense of agency*** (percezione del controllo sulle azioni e sulle loro conseguenze).

Studi di neuroimaging negli FMD hanno documentato una alterata attività a livello della **giunzione temporo-parietale** coinvolta nella consapevolezza delle azioni.

Human volition:
towards a neuroscience of will

Patrick Haggard

Nat Rev Neuroscience 2009

Neuropsychologia 49 (2011) 2791–2793

Contents lists available at ScienceDirect

Neuropsychologia

journal homepage: www.elsevier.com/locate/neuropsychologia

Brief Communication

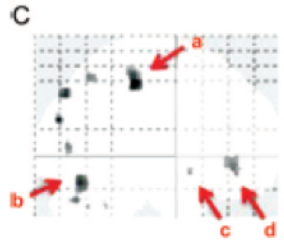
Abnormal sense of intention preceding voluntary movement in patients with psychogenic tremor

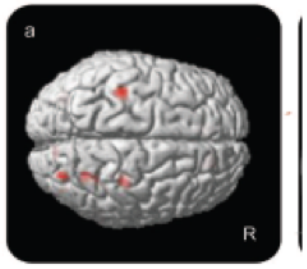
Mark J. Edwards[a,1], Giovanna Moretto[b,c,1], Petra Schwingenschuh[a,d], Petra Katschnig[a,d], Kailash P. Bhatia[a], Patrick Haggard[b,*]

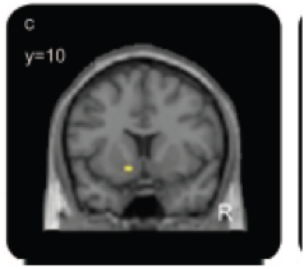
The involuntary nature of conversion disorder

Neurology® 2010;74:223–228

V. Voon, MD
C. Gallea, PhD
N. Hattori, MD, PhD
M. Bruno, MD
V. Ekanayake, BA
M. Hallett, MD







Introduzione

Storicamente gli FMD sono sempre stati considerati come secondari a traumi emotivi-psicologici *(disturbi di conversione)*.

Tuttavia studi epidemiologici recenti hanno dimostrato una comorbidità psicologica/psichiatrica sovrapponibile in disturbi organici e funzionali *(Kranick et al. 2011),* mettendo cosi in discussione la rilevanza di tali fattori nella genesi degli FMD.

Pertanto, il ruolo causale dei fattori psicologici nella genesi degli FMD è stato rimosso dai criteri diagnostici del DSM V, e sono attualmente considerati **fattori di rischio.**

Criteri Diagnostici (DSM-V) 2013

1) Presenza di sintomi neurologici (di natura motoria, sensitiva o alterazioni dello stato di coscienza)

2) Assenza di una malattia organica neurologica in grado di spiegare i sintomi

3) Associazione *causale* con fattori stressanti di natura psicologica

Terminologia

- I disturbi funzionali sono stati definiti utilizzando diversi termini
- L'assenza di una definizione universalmente accettata riflette l'incompleta conoscenza della fisiopatologia alla base di questo genere di disturbi
- La scelta della definizione influisce direttamente sull'outcome clinico

Panel 1: **Terms commonly used to describe psychogenic disorders and their implications**

Psychogenic
- Suggests psychological causation

Conversion disorder
- Operationalised within DSM: requires an identified psychological triggering factor for diagnosis

Somatisation disorder
- Operationalised within DSM: requires presence of multiple physical symptoms including one conversion neurological symptom

Medically unexplained symptoms
- Suggests that a medical explanation might one day be apparent
- Could refer to many medical symptoms that are not thought to be psychogenic, but still are not of a known cause

Functional
- Broad term suggesting a functional rather than a structural deficit, which could apply to several neurological disorders not regarded as psychogenic but where structural pathology is absent, eg, migraine

Hysteria
- Historical term that carries substantial stigma in society and implies a link between symptoms and the uterus

Non-organic
- Defines the condition by what it is not; the term organic is itself not well defined

DSM=Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, American Psychiatric Association.

Edwards and Bhatia, Lancet Neurol 2012

Utilizzare termini…non offensivi

What should we say to patients with symptoms unexplained by disease? The "number needed to offend"

Jon Stone, Wojtek Wojcik, Daniel Durrance, Alan Carson, Steff Lewis, Lesley MacKenzie, Charles P Warlow, Michael Sharpe

BMJ VOLUME 325 21–28 DECEMBER 2002

"If you had leg weakness, your tests were normal, and a doctor said you had 'X' would he be suggesting that you were Y (or had Y)." Percentage responses among 86 new neurology outpatients, offence score, and "number needed to offend"—that is, number of patients who would have to be given this diagnostic label before one patient is "offended"

	Connotations (Y) (No (%) of patients)						
Diagnoses (X)	Putting it on (yes)	Mad (yes)	Imagining symptoms (yes)	Medical condition (no)	Good reason to be off sick from work (no)	Offence score (%)*	Number needed to offend (95% CI)†
Symptoms all in the mind	71 (83)	27 (31)	75 (87)	57 (66)	60 (70)	93	2 (2 to 2)
Hysterical weakness	39 (45)	21 (24)	39 (45)	28 (33)	36 (42)	52	2 (2 to 3)
Psychosomatic weakness	21 (24)	10 (12)	34 (40)	18 (21)	24 (28)	42	3 (2 to 4)
Medically unexplained weakness	21 (24)	10 (12)	27 (31)	32 (37)	35 (41)	35	3 (3 to 5)
Depression associated weakness	18 (21)	6 (7)	17 (20)	13 (15)	24 (28)	33	4 (3 to 5)
Stress related weakness	8 (9)	3 (6)	12 (14)	14 (16)	20 (23)	20	6 (4 to 9)
Chronic fatigue	8 (9)	1 (2)	9 (10)	16 (19)	12 (14)	15	7 (5 to 13)
Functional weakness	6 (7)	2 (2)	7 (8)	7 (8)	17 (20)	12	9 (5 to 21)
Stroke	2 (2)	4 (5)	4 (5)	5 (6)	10 (12)	12	9 (5 to 21)
Multiple sclerosis	0 (0)	1 (1)	3 (3)	3 (3)	7 (8)	5	22 (9 to ∞)

*Proportion of patients who responded "yes" to one or more of "putting it on," "mad," or "imagining symptoms."
†Calculated according to the offence score.

VIEWPOINT

2013

From Psychogenic Movement Disorder to Functional Movement Disorder: It's Time to Change the Name

Mark J. Edwards, PhD,[1*] Jon Stone, PhD,[2] and Anthony E. Lang, MD[3]

[1]Sobell Department of Motor Neuroscience and Movement Disorders, University College London (UCL) Institute of Neurology, UCL, London, United Kingdom
[2]Department of Clinical Neurosciences, Western General Hospital, Edinburgh, Scotland
[3]Morton and Gloria Shulman Movement Disorders Centre and the Edmond J. Safra Program in Parkinson's Disease, Toronto Western Hospital, Toronto, Ontario, Canada

ABSTRACT: Successive attempts at rebranding may be behind at least some of the proliferation of terms we have at our disposal when describing patients with what are now most often referred to as "psychogenic," "conversion," or "somatoform" symptoms. The most popular term in the movement disorder literature, "psychogenic," provides the aetiology of the disorder within the name, indicating that the symptoms are "born of the mind." Here we argue that it is logical to stop using a term that defines the disorder with regard to a poorly defined aetiology that is not supported by current evidence, and, instead, to use a broad term—functional—not as a "polite eponym" but as a term that is freer from such assumptions and does not reinforce dualistic thinking. The main argument for change is not political or even practical, but scientific. © 2013 *Movement* Disorder Society

Key Words: psychogenic; functional; conversion disorder

Commentary

Mov Disord 2014

Christos Ganos[1,2], Roberto Erro[1], Kailash P. Bhatia[1], Michele Tinazzi[3]

..the term *psychogenic* in movement disorders refers to a presumed causal relation between psycho(patho)logical factors and the generation of abnormal movements...

..it should be noted that the psychopathological profiles of patients with psychogenic/functional movement disorders are broadly similar to patients with organic movement

..It is inherently paradoxical for neurologists to label patients as *psychogenic* without though being able to diagnose *psychogenicity* and/or even more explain its role in generation of symptoms

VIEWPOINT

2014

"Psychogenic Movement Disorders": They Are What They Are

Stanley Fahn, MD,[1*] and C. Warren Olanow, MD[2]

[1]Department of Neurology, Columbia University Medical Center, New York, New York, USA
[2]Department of Neurology and Neuroscience, Mount Sinai School of Medicine, New York, New York, USA

Point 1: PMDs are of the mind.

Point 2: "Functional" is an ambiguous term that has been used in different ways and confuses rather than clarifies; in contrast, "psychogenic" is a clear-cut term that provides an unambiguous identification of the nature of the disorder.

Point 3: "Functional" is not easily understood by patients.

Point 4: Informing a patient that he or she has a "functional" disorder could be a disservice to the patient and delay treatment.

Point 5: Explaining that the condition is "psychogenic" in a tactful way leads to patient acceptance and proper treatment.

frontiers in NEUROLOGY

OPINION ARTICLE
published: 27 February 2015
doi: 10.3389/fneur.2015.00037

Functional or psychogenic movement disorders: an endless enigmatic tale

Carlo Dallocchio[1], Antonio Marangi[2] and Michele Tinazzi[2]*

[1] Division of Neurology, Ospedale Civile, Azienda Ospedaliera Della Provincia Di Pavia, Voghera, Italy
[2] Section of Neurology, Department of Neurological and Movement Sciences, University Hospital of Verona, Verona, Italy
*Correspondence: carlo@dallocchio.it

Edited by:
Antonio Pisani, Università degli Studi di Roma Tor Vergata, Italy

Approccio Clinico

Diagnosi positiva: basarsi sulla presenza di segni e sintomi specifici, come nelle patologie neurologiche organiche

Non dovrebbe essere una diagnosi:

- di **esclusione**
- basata sul fatto che i sintomi sono **inusuali**
- basata unicamente sulla compresenza di un **disturbo psicologico/psichiatrico**

Approccio Clinico

- **Inconsistenza interna:** il sintomo tende a migliorare con la distrazione e a **peggiorare con l'attenzione**; variabilità della fenomenologia durante la valutazione clinica (per es qualità e distribuzione); il sintomo si manifesta o meno a seconda del setting in cui viene esaminato (ad es. entrainment del tremore)

- **Incongruenza (personal beliefs):** disturbi del movimento misti; attacchi parossistici; sensibilità atipica allo stimolo come nel mioclono; il sintomo non segue le leggi anatomiche o fisiche (ad es. visione tubulare)

Criteri diagnostici

Fahn-Williams criteria[48] *Adv Neurol 1988*

Documented

Persistent relief by psychotherapy, suggestion, or placebo has been demonstrated, which may be helped by physiotherapy; or the patient was seen without the movement disorder when believing himself or herself unobserved.

Clinically established

The movement disorder is incongruent with a classical movement disorder or there are inconsistencies in the examination, plus at least one of the following three: other psychogenic signs, multiple somatisations, or an obvious psychiatric disturbance.

Probable

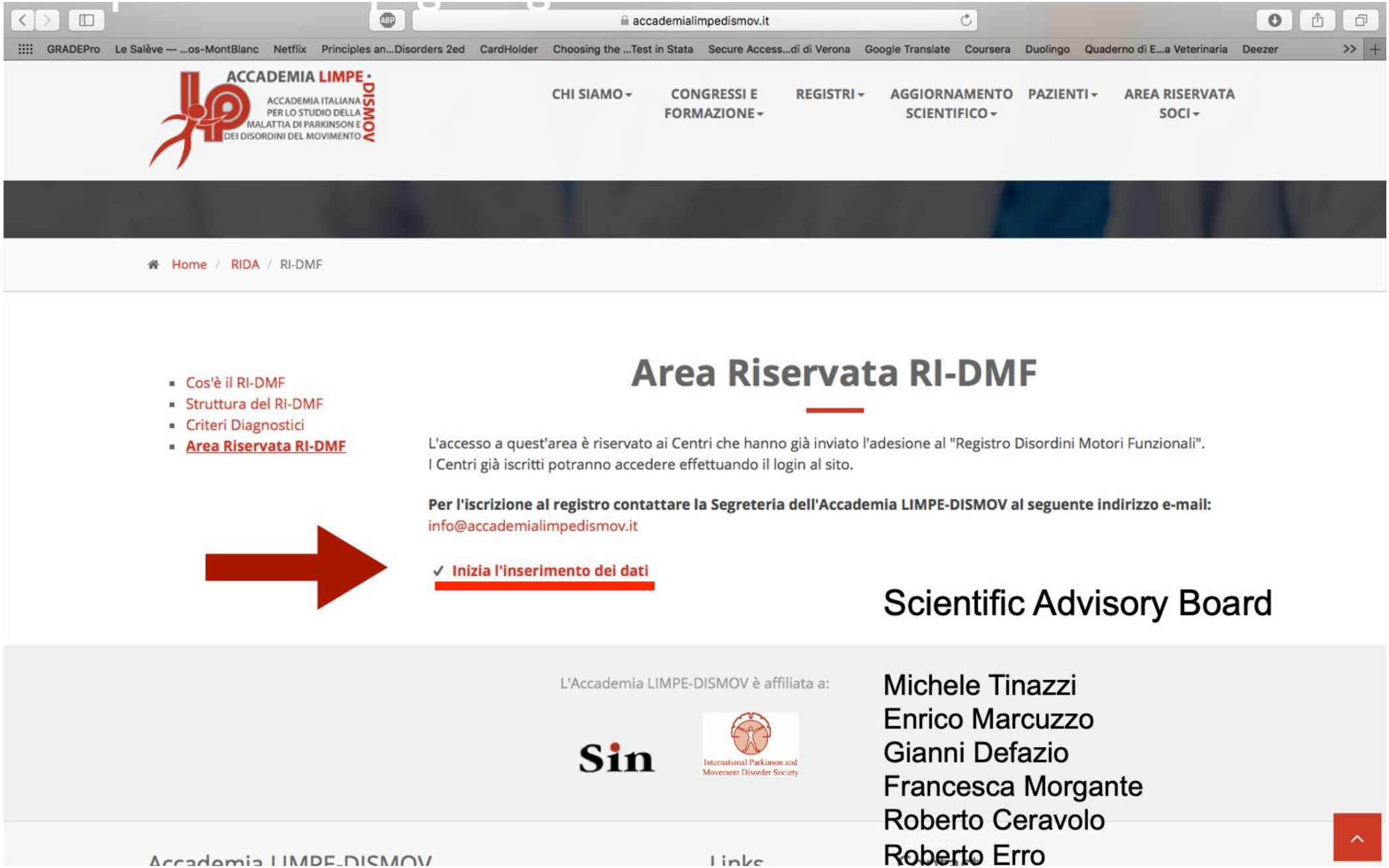
The movement disorder is incongruent or inconsistent with typical movement disorders or there are psychogenic signs or multiple somatisations.

Possible

Evidence of an emotional disturbance.

- 4 livelli di certezza diagnostica
- Elementi diagnostici fondamentali: incongruenza/inconsistenza
- Successivamente è stato proposto di unificare le categorie «Documented» e «Clinically Established» in Clinically Defined *(Gupta and Lang 2009)*

RI-DMF proposto dal Dipartimento di Neuroscienze, Biomedicina e Movimento Univeristà di Verona e dall'Accademia LIMPE-DISMOV



Participating Centres

FVR01	Michele Tinazzi	FRM01	Giovanni Fabbrini
FSA01	Roberto Erro	FNA01	Alessandro Tessitore
FPI01	Roberto Ceravolo	FTO01	Leonardo Lopiano
FBR01	Andrea Pilotto	FBO01	Pietro Cortelli
FMI02	Roberto Eleopra	FRM03	Annarita Bentivoglio
FCT01	Mario Zappia	FNA02	Marcello Esposito
FPV01	Angelo Antonini	FTS01	Paolo Manganotti
FPV01	Carlo Dallocchio	FME01	Francesca Morgante
FCZ01	Francesco Bono	FRM04	Antonio Pisani
FMI03	Gambini Orsola	FRM02	Laura Vacca
FMI01	Alberto Albanese	FTO02	Mario Coletti Moja
FCH01	Laura Bonanni	FCA01	Giovanni Defazio
FIS01	Nicola Modugno		

25 centres: 11 in the north of Italy, 5 in the center, 9 in the south of Italy

Movement Disorders

2020

CLINICAL PRACTICE

Clinical Correlates of Functional Motor Disorders: An Italian Multicenter Study

Michele Tinazzi, MD, PhD,[1,*] Francesca Morgante, MD, PhD,[2,3] Enrico Marcuzzo, MD,[1] Roberto Erro, MD, PhD,[4] Paolo Barone, MD, PhD,[4] Roberto Ceravolo, MD,[5] Sonia Mazzucchi, MD,[5] Andrea Pilotto, MD,[6,7] Alessandro Padovani, PhD,[6] Luigi M. Romito, MD, PhD,[8] Roberto Eleopra, MD,[8] Mario Zappia, MD,[9] Alessandra Nicoletti, MD, MSc,[9] Carlo Dallocchio, MD,[10] Carla Arbasino, MD,[10] Francesco Bono, MD,[11] Angelo Pascarella, MD,[11] Benedetta Demartini, MD, PhD,[12] Orsola Gambini, MD,[12] Nicola Modugno, MD, PhD,[13] Enrica Olivola, MD,[13] Vincenzo Di Stefano, MD,[14] Alberto Albanese, MD,[15] Gina Ferrazzano, MD, PhD,[16] Alessandro Tessitore, MD, PhD,[17] Maurizio Zibetti, MD, PhD,[18] Giovanna Calandra-Buonaura, MD, PhD,[19,20] Martina Petracca, MD, PhD,[21] Marcello Esposito, MD, PhD,[22,23] Antonio Pisani, MD, PhD,[24] Paolo Manganotti, MD, PhD,[25] Fabrizio Stocchi, MD, PhD,[26] Mario Coletti Moja, MD,[27] Angelo Antonini, MD, PhD,[28] Giovanni Defazio, MD, PhD,[29] and Christian Geroin, PhD[1,*]

2020

Received: 31 October 2020 | Accepted: 6 December 2020

DOI: 10.1111/ene.14674

european journal of neurology

SHORT COMMUNICATION

Functional motor disorders associated with other neurological diseases: Beyond the boundaries of "organic" neurology

Michele Tinazzi[1] | Christian Geroin[1] | Roberto Erro[2] | Enrico Marcuzzo[1] | Sofia Cuoco[2] | Roberto Ceravolo[3] | Sonia Mazzucchi[3] | Andrea Pilotto[4,5] | Alessandro Padovani[4] | Luigi Michele Romito[6] | Roberto Eleopra[6] | Mario Zappia[7] | Alessandra Nicoletti[7] | Carlo Dallocchio[8] | Carla Arbasino[8] | Francesco Bono[9] | Angelo Pascarella[9] | Benedetta Demartini[10] | Orsola Gambini[10] | Nicola Modugno[11] | Enrica Olivola[11] | Laura Bonanni[12] | Elena Antelmi[1] | Elisabetta Zanolin[13] | Alberto Albanese[14] | Gina Ferrazzano[15] | Rosa de Micco[16] | Leonardo Lopiano[17] | Giovanna Calandra-Buonaura[18,19] | Martina Petracca[20] | Marcello Esposito[21] | Antonio Pisani[22] | Paolo Manganotti[23] | Fabrizio Stocchi[24] | Mario Coletti Moja[25] | Angelo Antonini[26] | Tommaso Ercoli[27] | Francesca Morgante[28,29]

Journal of Neurology
https://doi.org/10.1007/s00415-021-10583-w

2021

ORIGINAL COMMUNICATION

Functional motor phenotypes: to lump or to split?

Michele Tinazzi[1] · Christian Geroin[1] · Enrico Marcuzzo[1] · Sofia Cuoco[2] · Roberto Ceravolo[3] · Sonia Mazzucchi[3] · Andrea Pilotto[4,5] · Alessandro Padovani[4] · Luigi Michele Romito[6] · Roberto Eleopra[6] · Mario Zappia[7] · Alessandra Nicoletti[7] · Carlo Dallocchio[8] · Carla Arbasino[8] · Francesco Bono[9] · Giuseppe Magro[9] · Benedetta Demartini[10] · Orsola Gambini[10] · Nicola Modugno[11] · Enrica Olivola[11] · Laura Bonanni[12] · Elisabetta Zanolin[13] · Alberto Albanese[14] · Gina Ferrazzano[15] · Rosa De Micco[16] · Leonardo Lopiano[17] · Giovanna Calandra-Buonaura[18,19] · Martina Petracca[20] · Marcello Esposito[21] · Antonio Pisani[22,23] · Paolo Manganotti[24] · Lucia Tesolin[25] · Francesco Teatini[2] · Tommaso Ercoli[26] · Francesca Morgante[27,28] · Roberto Erro[2]

Received: 26 March 2021 / Revised: 22 April 2021 / Accepted: 24 April 2021

2021

Parkinsonism and Related Disorders 91 (2021) 32–36

Contents lists available at ScienceDirect

Parkinsonism and Related Disorders

journal homepage: www.elsevier.com/locate/parkreldis

Short communication

Functional gait disorders: Demographic and clinical correlations

Michele Tinazzi [a,**], Andrea Pilotto [b,c], Francesca Morgante [d,e], Enrico Marcuzzo [a], Sofia Cuoco [f], Roberto Ceravolo [g], Sonia Mazzucchi [g], Alessandro Padovani [b], Luigi Michele Romito [h], Roberto Eleopra [h], Alessandra Nicoletti [i], Carlo Dallocchio [j], Carla Arbasino [j], Francesco Bono [k], Giuseppe Magro [k], Benedetta Demartini [l], Orsola Gambini [l], Nicola Modugno [m], Enrica Olivola [m], Laura Bonanni [n], Elisabetta Zanolin [o], Alberto Albanese [p], Gina Ferrazzano [q], Alessandro Tessitore [r], Leonardo Lopiano [s], Giovanna Calandra-Buonaura [t,u], Martina Petracca [v], Marcello Esposito [w], Antonio Pisani [x,y], Paolo Manganotti [z], Lucia Tesolin [aa], Francesco Teatini [aa], Giovanni Defazio [ab], Tommaso Ercoli [ab], Fabrizio Stocchi [ac], Roberto Erro [f], Mario Zappia [i], Christian Geroin [a,*]

2021

Movement Disorders

SPi | MDC3 | 13322 | No. of Pages: 5 | ME:

RESEARCH ARTICLE

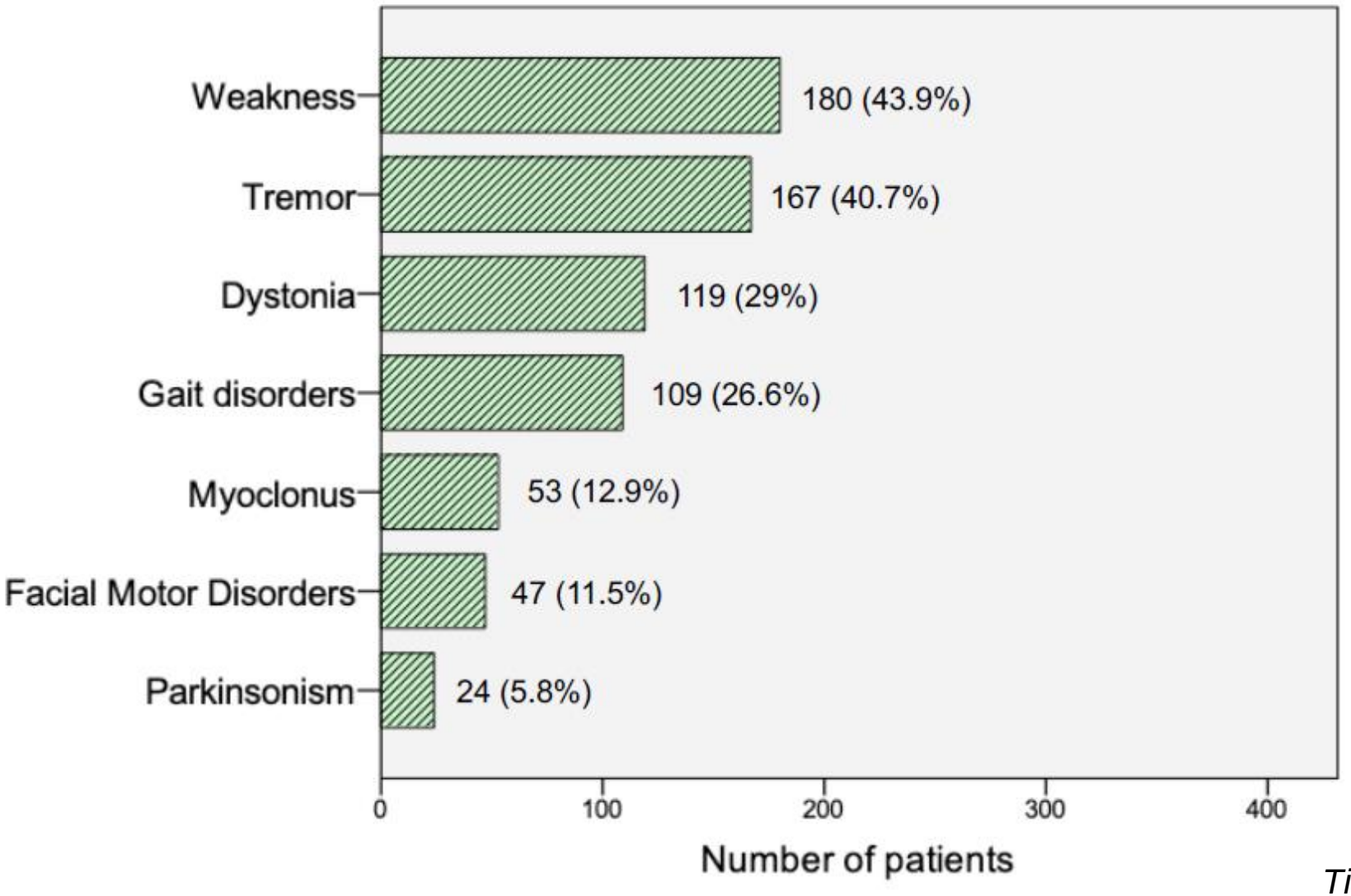
CLINICAL PRACTICE

Sudden Onset, Fixed Dystonia and Acute Peripheral Trauma as Diagnostic Clues for Functional Dystonia

Tommaso Ercoli, MD,[1a] Giovanni Defazio, MD, PhD,[1a] Christian Geroin, PhD,[2,*] Enrico Marcuzzo, MD,[2] Giovanni Fabbrini, MD,[3,4] Francesco Bono, MD,[5] Alessandro Mechelli, MD,[5] Roberto Ceravolo, MD,[6] Luigi Michele Romito, MD, PhD,[7] Alberto Albanese, MD,[8] Antonio Pisani, MD, PhD,[9,10] Maurizio Zibetti, MD, PhD,[11] Maria Concetta Altavista, MD, PhD,[12] Luca Maderna, MD,[13] Martina Petracca, MD, PhD,[14] Paolo Girlanda, MD,[15] Marcello Mario Mascia, MD,[1] Alfredo Berardelli, MD,[3,4] Michele Tinazzi, MD, PhD,[2,*] and for the Italian Registry of Functional Motor Disorders Study Group,, the Italian Registry of Adult Dystonia Study Group

Fenomenologia

410 patients



Tinazzi et al. 2020

ACCADEMIA LIMPE DISMOV
ACCADEMIA ITALIANA PER LO STUDIO DELLA MALATTIA DI PARKINSON E DEI DISORDINI DEL MOVIMENTO

Esordio dei sintomi

	70%	30%	
Variable	**Acute FMDs (N=290)**	**Slowly progressing FMDs (N=120)**	**P-Value (Acute Vs Slowly)**
Female, n (%)	203 (70)	88 (73.3)	.499
Age, y, mean (SD)	45.8 (15.8)	48.5 (15.5)	.154
Education, y, mean (SD)	11.7 (3.74)	11.5 (3.9)	.934
Previous consultations (%)	226 (77.9)	94 (78.3)	.929
FMDs duration, y, mean (SD)	5.1 (6.4)	6.7 (7.6)	**.023**
FMDs phenotype (%)			
Weakness	132 (45.5)	48 (40)	.306
Tremor	102 (35.2)	65 (54.2)	**>0.001**
Dystonia	78 (26.9)	41 (34.2)	.140
Gait disorders	61 (21)	48 (40)	**>0.001**
Jerks	40 (13.8)	13 (10.8)	.416
Facial Motor Disorders	32 (11)	15 (12.5)	.672
Parkinsonism	13 (4.5)	11 (9.2)	.066
Diagnosis of FMDs^ (%)			
General Neurologist	57 (19.7)	14 (11.7)	**.052**
Movement disorders Neurologist	218 (75.2)	104 (86.7)	**.010**
Non-motor symptoms (%)			
Anxiety	153 (52.8)	61 (50.8)	.723
Fatigue	122 (42.1)	63 (52.5)	.053
Pain	113 (39)	59 (49.2)	.057
Headache	74 (25.5)	33 (27.5)	.667
Insomnia	77 (26.6)	35 (29.2)	.589
Panic attacks	53 (18.3)	15 (12.5)	.153
Other FND (%)			
Visual functional symptoms	29 (10)	18 (15)	.148
Cognitive functional symptoms	28 (9.7)	17 (14.2)	.184
Fibromyalgia	24 (8.3)	10 (8.3)	.985
Psychiatric comorbidities, (%)			
Major depressive disorder	38 (13.1)	17 (14.2)	.774
Somatoform disorder	15 (5.2)	4 (3.3)	.420
Precipitating factors (%)			
Surgery	43 (14.8)	20 (16.7)	.638
General anesthesia	19 (6.6)	14 (11.7)	.083
Adverse drug reactions	11 (3.8)	5 (4.2)	.787
DAT SPECT (%)	39 (13.4)	22 (18.3)	.206
Physiotherapy (%)	74 (25.5)	42 (35)	.052
Oral Medications (%)			
Antidepressants	93 (32.1)	42 (35)	.566
Benzodiazepine	78 (26.9)	33 (27.5)	.900
Antipsychotic drug	21 (7.2)	14 (11.7)	.145

Emiparesi sn

Movement Disorders
CLINICAL PRACTICE
2020 CASE SERIES

Functional Motor Disorders Mimicking Symptoms Upon Resolution of Cerebrovascular Disease

Fabio Paio, MD, Elena Antelmi, MD, PhD, Enrico Conti, MD, Ilaria Di Vico, MD, and Michele Tinazzi, MD, PhD*

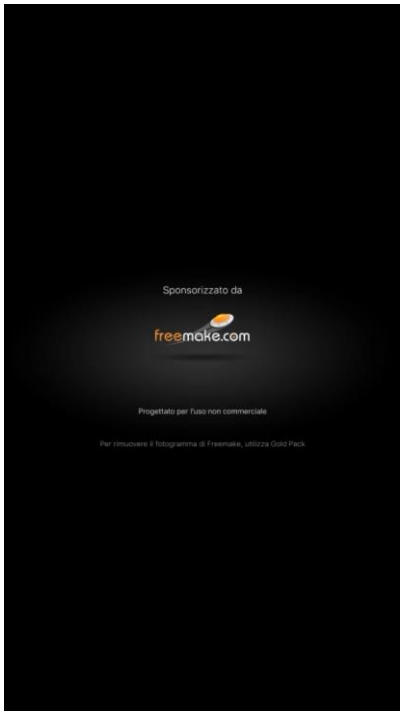
29 anni

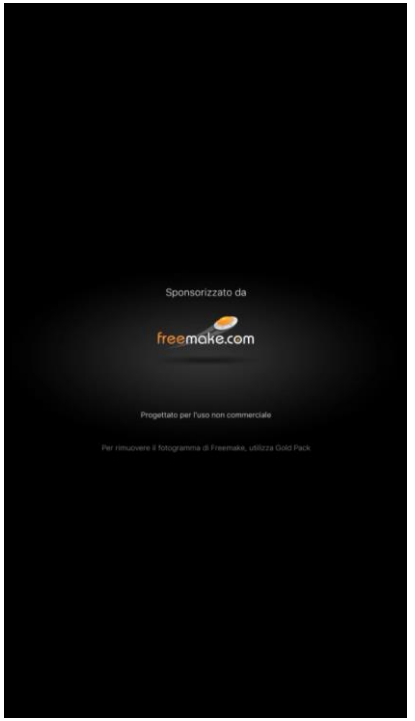
Nel settembre 2018 emiparesi sn e crisi epilettiche non meglio specificate da sanguinamento di cavernoma post-rolandico dx

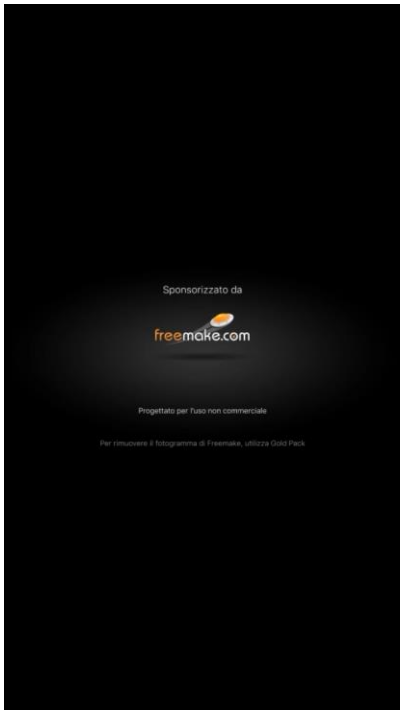
Nel giugno 2019 asportazione chirugica radicale del cavernoma dopo nuovo sanguinamento con emiparesi a favorevole evoluzione

Nell'ottobre 2019 emiparesi sn e dolore arto inferiore sn ed episodi di assenze.
EEG, RMN encefalo nella norma

Trauma infantile psicologico: all'età di 11 anni ha perso amica migliore
Trauma fisico: a 15 anni intervento colonna vertebrale



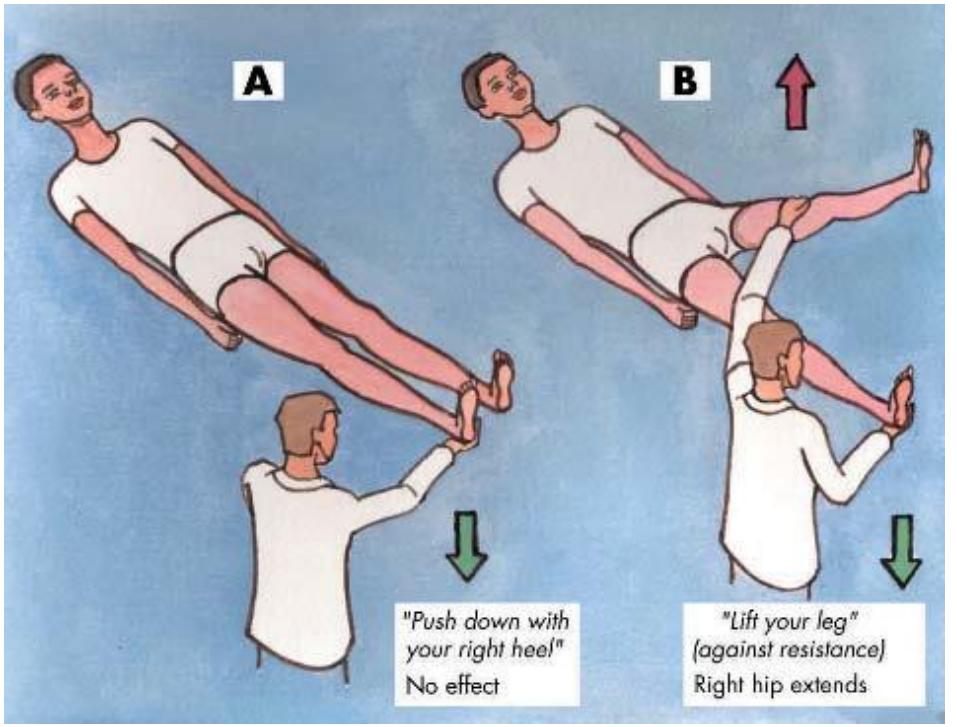




Paresi/Paralisi

Segni di **inconsistenza** interna

- Nessuna difficoltà alla flessione plantare del piede vs incapacità a camminare sulla punta dei piedi
- Aumento della forza se si osserva il paziente al di fuori della visita (mentre si veste, etc.)
- Fluttuazione della debolezza, che può brevemente tornare alla normalità in seguito ad «incitazione (1…2…3!)
- Collapsing weakness: forza normale per qualche secondo, con successiva perdita *improvvisa* (DD con miastenia) totale del tono
- Arto sospeso, gestualità
- **Segno di Hoover**



Segno di Hoover

La prova si esegue anche con paziente seduto. L'esaminatore pone la sua mano al di sotto della coscia dell'arto inferiore affetto. Si chiede al paziente di esercitare la massima pressione volontaria della coscia contro il piano del letto: in caso di paresi o paralisi questa pressione risulta ridotta o assente.

Si chiede al paziente di sollevare l'arto inferiore non affetto contro resistenza (tonico e fasico): in caso di paresi o paralisi funzionale si apprezzerà un aumento della pressione esercitata dalla coscia contro la mano dell'esaminatore poiché in condizione fisiologiche tale movimento si associa ad un abbassamento dell'arto contro laterale.

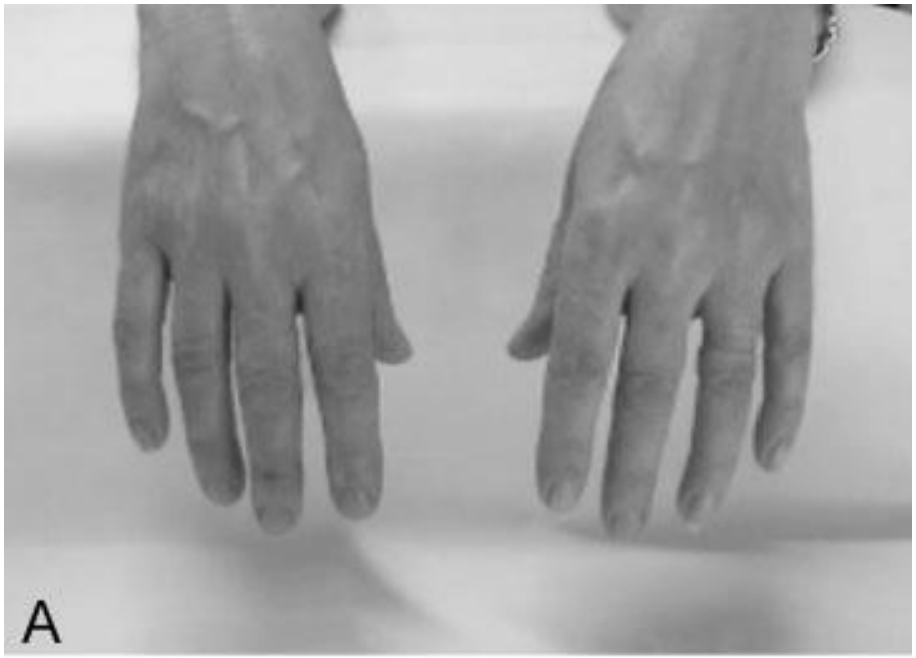
Abduction Finger Sign: A New Sign to Detect Unilateral Functional Paralysis of the Upper Limb

Michele Tinazzi,[1,2] Sara Simonetto,[1,2] Laura Franco,[1,2]
Kailash P. Bhatia,[3] Giuseppe Moretto,[2]
Antonio Fiaschi,[1] and Cristina Deluca[1,2]*

Movement Disorders, Vol. 23, No. 16, 2008

Segno dell'abduzione del V dito

Il soggetto mantiene le mani in posizione di riposo. Si chiede al paziente di eseguire un movimento di abduzione delle dita della mano non affetta, con la massima forza possibile, contro resistenza opposta dall'esaminatore per 2 minuti: in caso di paralisi funzionale si apprezzerà un movimento sincinetico di abduzione delle dita della mano affetta.



Tremore

16 anni

Rottura MAV mesencefalica con inondazione ventricolare e lieve emiparesi dx, faccia inclusa

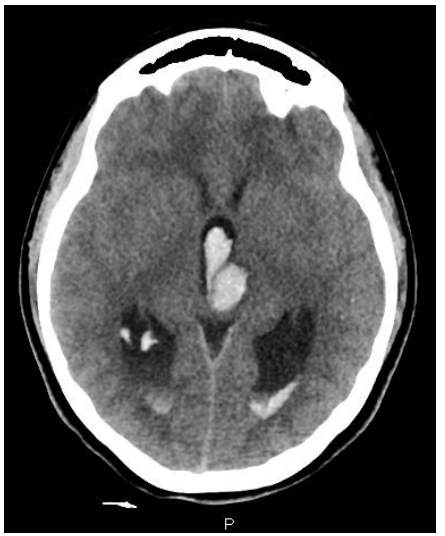
Embolizzazione MAV

A distanza di 1 mese comparsa di tremore a riposo e posturale

Terapia con Madopar 250 1 cp x 3/die senza beneficio

Sonnolenza diurna

Confermata la terapia con Levodopa riducendo a 400 mg/die



Paio al. 2020

Distonia

- Rispetto alla distonia organica, la distonia funzionale:
  - E' generalmente **fissa**
  - E' spesso associata a dolore **causalgia-dystonia**
  - **NON** rispetta la **distribuzione età-dipendente** tipica delle forme organiche primitive (età giovanile: esordio AAII con generalizzazione; età adulta: forme focali senza tendenza alla generalizzazione).
  - Distraibilità piu' difficile (valutare paziente in piedi)
  - Possibile drammatica remissione della distonia da **effetto placebo** (ad es. dopo singola iniezione di tossina botulinica)

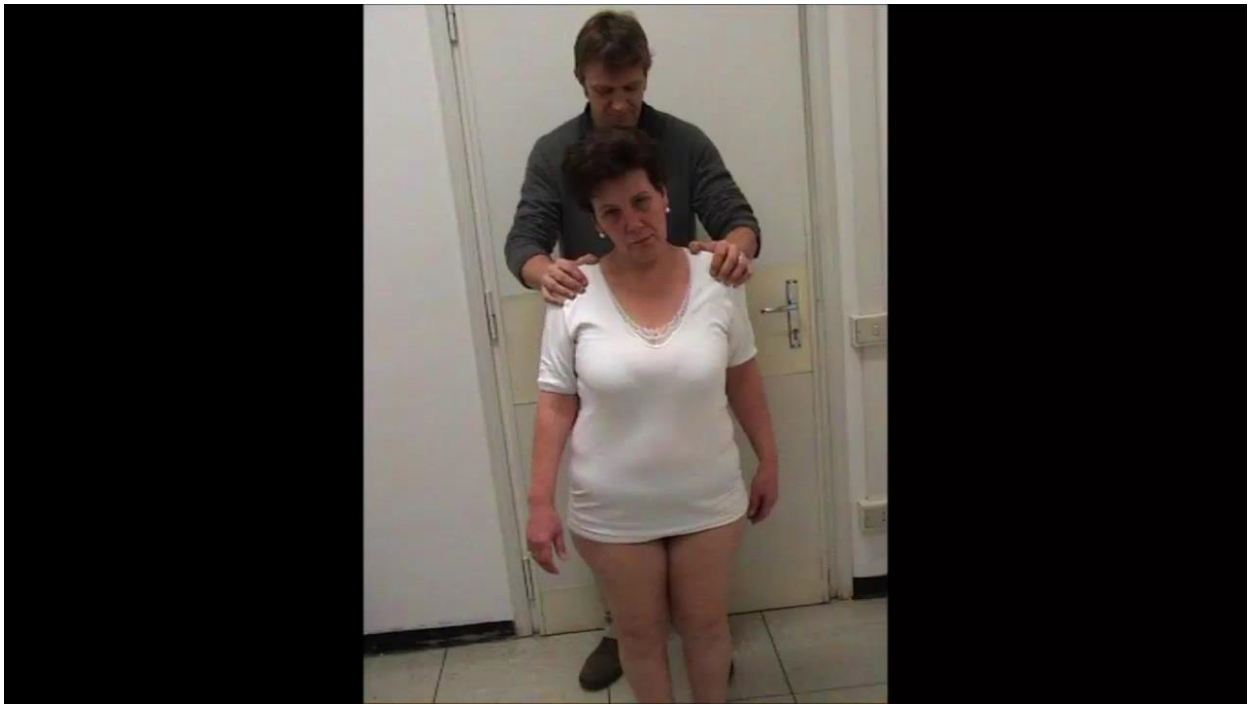
Immediate Response to Botulinum Toxin Injections in Patients with Fixed Dystonia

Mark J. Edwards, PhD,[1] Kailash P. Bhatia, MD,[1]* and Carla Cordivari, MD[2]

Mov Disord 2011

Crisi Dissociative

- Caratterizzate da uno stato di blackout (stato di trans senza chiara pdc) non associata ad anomalie EEG
- In età giovanile F:M=3:1, avanzata F:M=1:1
- Semeiologia:
  - movimenti teatrali e violenti (70%)
  - giacere fermi a terra (25%)
  - altro (5%)
- Tipica assenza di una fase «tonica»
- Durata spesso > 5 minuti



- Frequente presenza di una fase prodromica caratterizzata da **sintomi dissociativi:**
  - **Derealizzazione**: sensazione che il mondo circostante sia «irreale»
  - **Depersonalizzazione**: sensazione che il corpo «non appartenga» più al paziente
- Diagnosi: Anamnesi e clinica, Video-EEG

Disturbi della marcia

Tabella 4. Principali tipologie di marcia funzionale

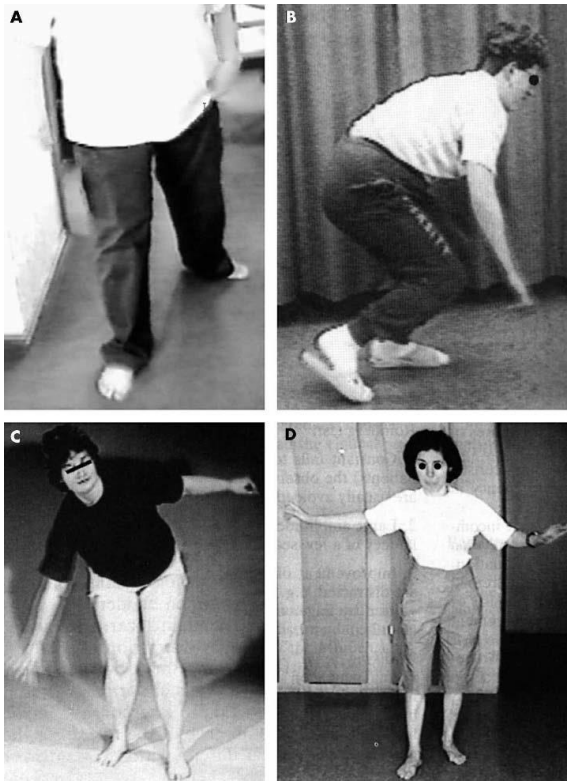
Tipo di deambulazione	Caratteristiche cliniche
Walking-on-ice gait	Passi ampi, lenti e molto incerti
Dragging gait	Marcia trascinata (consumo parte interna del tacco)
Tightrope-walkers gait o pseudoataxia	Marcia del funambolo a braccia distese
Crouching gait	Marcia accucciata, spesso associata alla paura di cadere
Knee-buckling gait	Cedimento del ginocchio

(A) Dragging gait

(B) Crouching gait
(Uneconomic posture)

(C) Pseudoataxia (Tightrope-walkers gait)

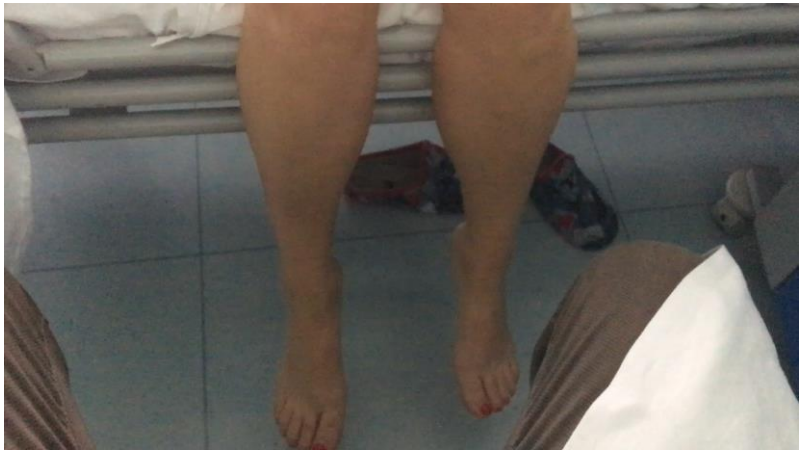
(D) "Walking on ice"



Stone et al. JNNP 2005

Astasia-Abasia

- 55 anni
- Al risveglio dolore al rachide cervicale, non in grado di deambulare, parestesie arti superiori. Ipoestesia dall'inguine in giu'. ROT normali
- RMN lombo-sacrale e Puntura lombare negative
- Ciclo riabilitativo intensivo di 5 gg



Kick gait

40 anni

Nel 2018 trauma minore arto inferiore dx

Nota l’inconsistenza della marcia che emerge quando il paziente è invitato a camminare sui talloni o all’indietro

Handbook of Clinical Neurology, Vol. 139 (3rd series)
Functional Neurologic Disorders
M. Hallett, J. Stone, and A. Carson, Editors
http://dx.doi.org/10.1016/B978-0-12-801772-2.00031-X

Chapter 31

Functional facial and tongue movement disorders

A. FASANO[1,2]* AND M. TINAZZI[3]

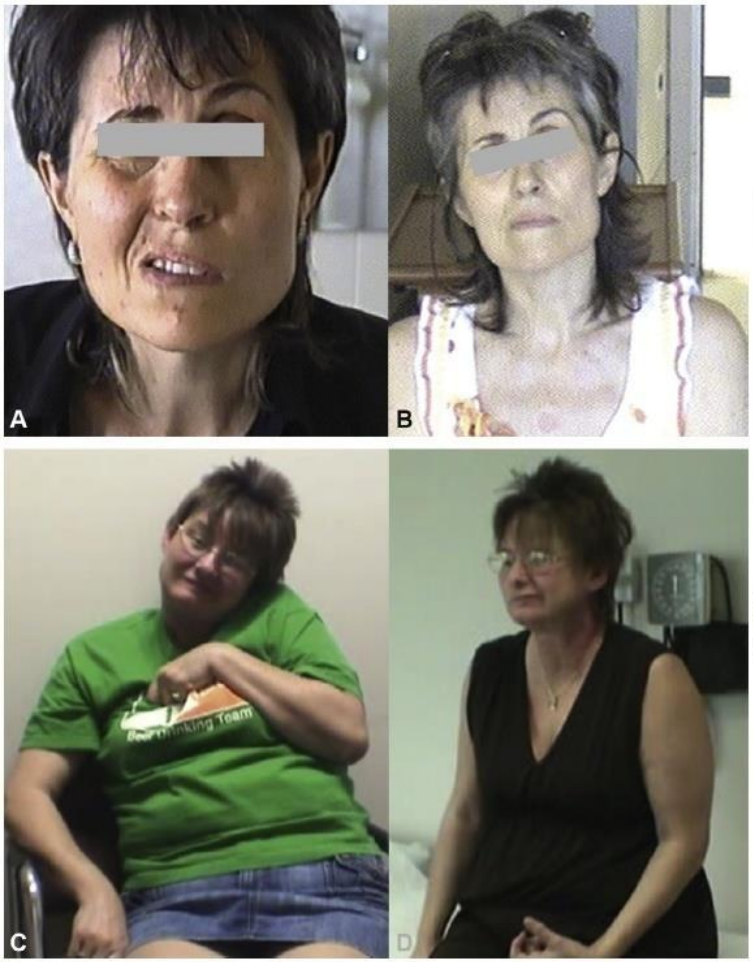


Fig. 31.3. (**A**) The involvement of the lower lip with downward deviation at the angle of the mouth is a very common pattern of facial functional movement disorders (FMDs); in this situation the orbicularis oculis is nearly always contracted as well. (**B**) Variability of clinical presentation in the same patient displayed in (**A**). (**C**) Patient with facial FMD and fixed dystonia of ipsilateral upper limb. (Courtesy of Dr. Alberto Espay, University of Cincinnati, USA.) (**D**) Variability of clinical presentation in the same patient displayed in (**D**).

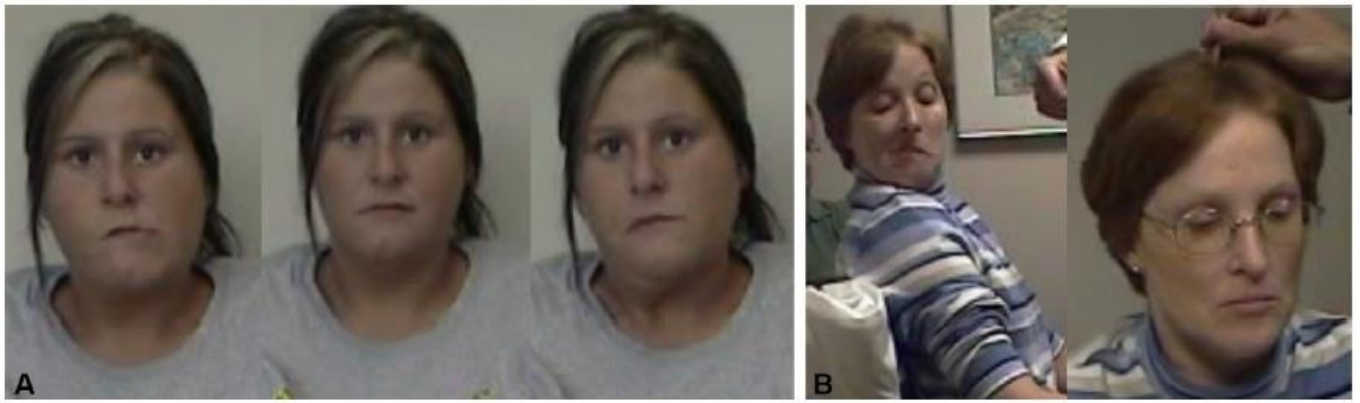


Fig. 31.6. The variability of presentation over time (**A**) or the effect of suggestibility maneuvers (**B**) in 2 patients with facial functional movement disorder. (Courtesy of Dr. Alberto Espay, University of Cincinnati, USA.)

Classificazione dei disturbi della voce e della parola

• Disturbi della voce funzionali

- «Muscolar tension voice disorders» (MTVD)
  - Disfonia ipercinetica
  - Disfonia ipocinetica
- «Psychogenic voice disorders» (PVD)
  - Afonia improvvisa
  - Disfonia improvvisa

• Disturbi funzionali della parola funzionali

- Alterazione dell'articolazione: disartria
- Alterazione della fluenza: balbuzie
- Alterazione della prosodia: accento straniero (FAS) e accento infantile.

Gestione Clinica

Rappresenta un processo complesso che si sviluppa in

3 steps consequenziali:

Raccolta della storia clinica

1) **Lista dei sintomi** (utile per diagnosi, pazienti ben disposti)
2) **Circostanze sintomi all'esordio** (panico, dissociazione, traumi)
3) **Decorso clinico** (fluttuazioni, comparsa nel week-end)
4) **Presenza di disabilità** (discrepanze in quello che dice/fa il paziente)
5) **Convinzioni del paziente sulla malattia** (modelli di malattia)
6) **Informarsi cosa e' accaduto con i medici in precedenza** (aiuta il medico a orientarsi meglio sulla comunicazione)
7) **Cautela nel domandare sintomi emotivi**

Comunicazione della diagnosi

1) DIRE AL PAZIENTE CHE CREDIAMO CHE SOFFRA DI QUEI SINTOMI

"Ti credo, non penso che tu immagini questi sintomi, o che tu stia diventando pazzo"

2) SPIEGARE AL PAZIENTE CHE SI TRATTA DI SINTOMI NEUROLOGICI FUNZIONALI

Comunicazione della diagnosi

3) SPIEGARE AL PAZIENTE IL PERCHE' NOI CONSIDERIAMO QUESTA DIAGNOSI

Es: mostra loro il segno di Hoover's o che il tremore si ferma con la distrazione **(Trick).** Di solito il paziente non perde il segno funzionale

4) SPIEGARE AL PAZIENTE PERCHE' NON HA MP, STROKE, SM

Trick or treat?

Showing patients with functional (psychogenic) motor symptoms their physical signs

Stone and Edwards Neurology 2012

Mostrare al paziente il segno riscontrato è già di per sé un Trattamento **(Treat):**

- Testimonia dell'**accuratezza** e del **processo razionale** che ha condotto il medico a formulare la diagnosi ("Rational Persuasion" P. Dubois 1909)
- Consente al paziente di capire la **differenza tra organico e funzionale**
- Convince il paziente della **potenziale reversibilità**

COMUNICAZIONE DELLA DIAGNOSI

5) ENFATIZZARE CHE QUESTI SINTOMI SONO COMUNI E CHE SONO POTENZIALMENTE REVERSIBILI (INTRODURRE METAFORE)

“Seguo molti pazienti con questi sintomi”

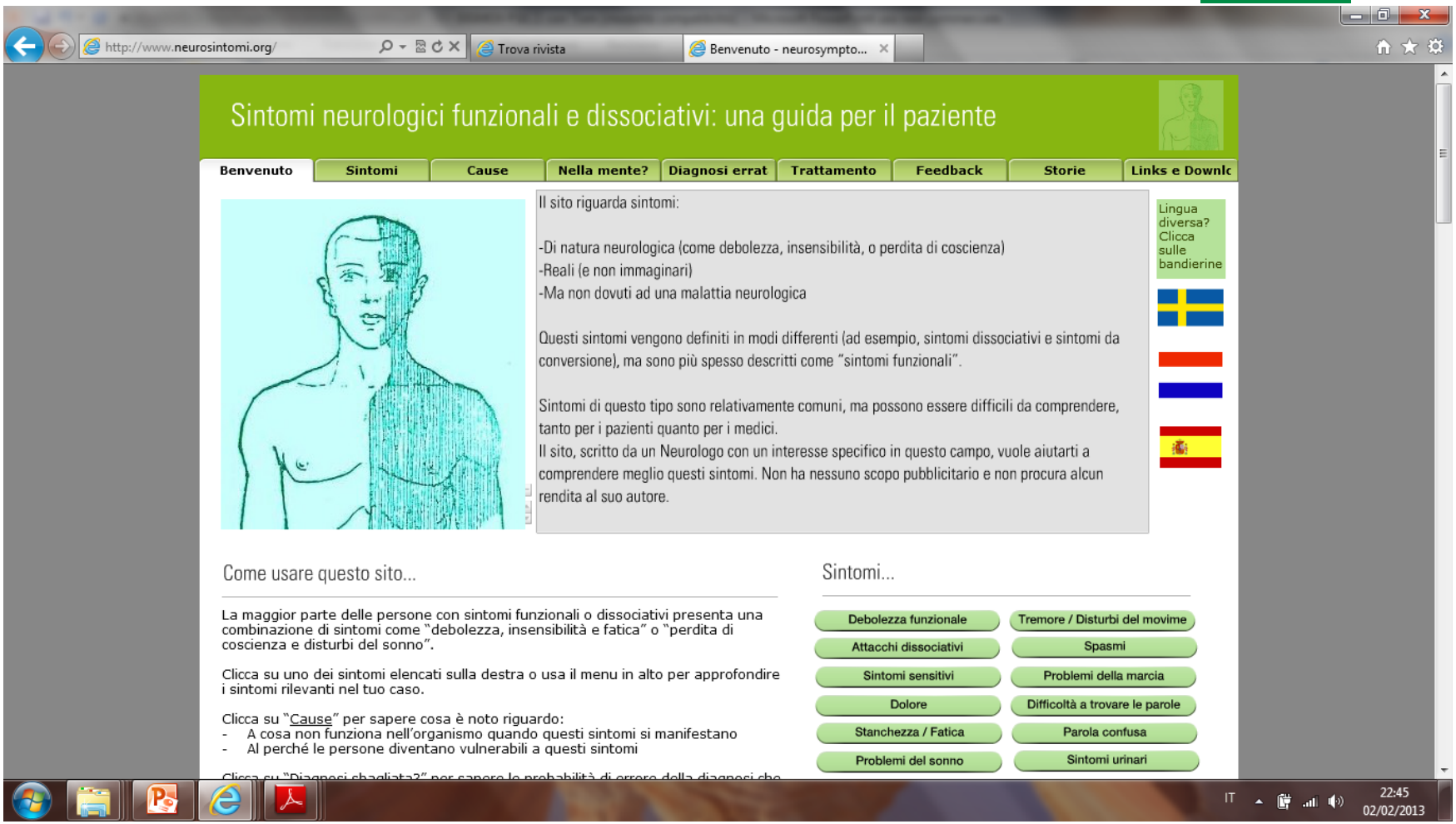
“Siccome il sistema nervoso non è danneggiato, questi sintomi sono potenzialmente reversibili”.

«E’ come se fosse presente un problema di software invece che un problema di hardware….; è come se ci fosse un problema di interruttore e non di fili che non permette di accendere la lampadina»

6) UTILIZZA L'INFORMAZIONE SCRITTA

www.neurosymptoms.org

Clicca sulla bandiera



Traduzione a cura del Prof. Michele Tinazzi 2010

COMUNICAZIONE DELLA DIAGNOSI

7) COINVOLGI FAMIGLIARI/AMICI E FISSA UN'ALTRA VISITA

Il follow-up è importante per il paziente per rendersi conto della diagnosi, e perché dimostra che il medico è interessato. "E' veramente importante che tu sia convinto che questa è la diagnosi corretta. Questo è il primo step necessario affinche' il trattamento sia efficace"

DIAGNOSI SBAGLIATA?

- Il paziente va confortato riguardo al fatto che la possibilità che il neurologo si sbagli nella diagnosi non è più elevata rispetto a malattie organiche, sia *psichiatriche* (ad es. schizofrenia) che *neurologiche* (ad es. sclerosi multipla)
- Studi effettuati a partire dagli anni '70 hanno mostrato una media di errore diagnostico di circa il 4% a 5 anni (*Stone 2009*)

COMUNICAZIONE DELLA DIAGNOSI

8) CONSIGLIA Riabilitazione

9) VALUTAZIONE PISCOLOGICA/PSICHIATRICA

Non alla prima o alla seconda visita, ma dopo che si è stabilito una certa relazione. Far capire al paziente che lo psichiatra lo può aiutare a:

- capire come il suo stato ansioso o di umore possa interagire con il suo disordine del movimento

- considerare il disturbo nel contesto di altri sintomi (x es dolore e fatica)

- capire possibili eventi rilevanti o traumatici psicologici

- consigliare strategie di distrazione, evitare situazioni scatenanti

Curr Treat Options Neurol (2014) 16:286
DOI 10.1007/s11940-014-0286-5

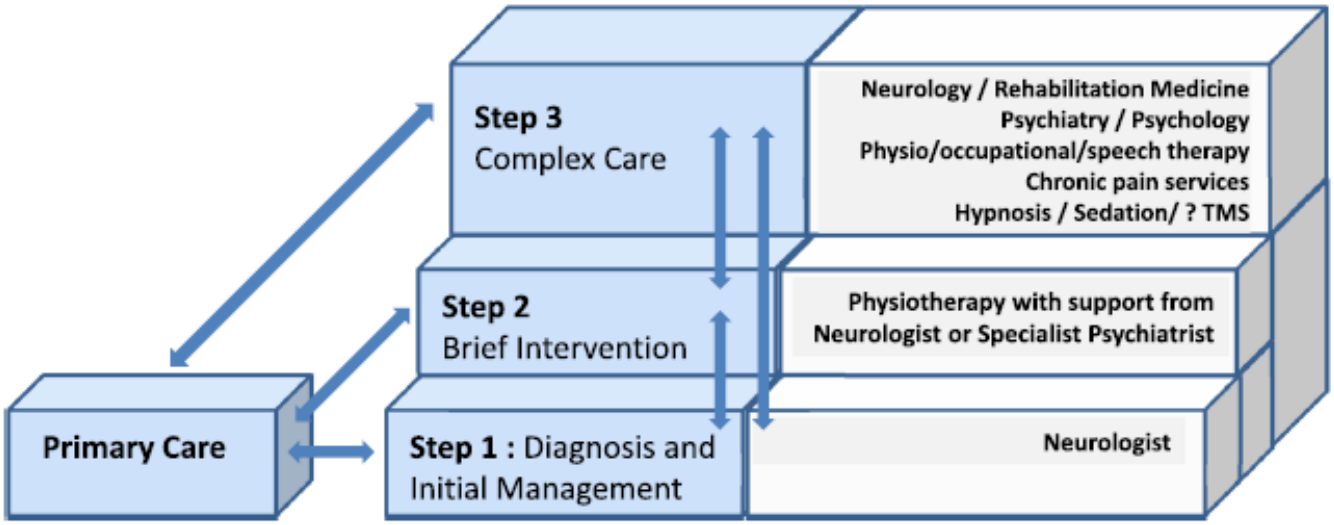
MOVEMENT DISORDERS (O SUCHOWERSKY, SECTION EDITOR)

Treatment of Functional Motor Disorders

Jeannette M. Gelauff, MD[1]
Yasmine E. M. Dreissen, MD[2]
Marina A. J. Tijssen, MD, PhD[1]
Jon Stone, MBChB, FRCP, PhD[3,*]

PRESA IN CARICO DEL PAZIENTE

- Rappresenta un momento **fondamentale** del trattamento
- Indispensabile per creare **fiducia** nel curante da parte del paziente
- Comincia con un'efficace **comunicazione della diagnosi**



Contents lists available at SciVerse ScienceDirect

Journal of Psychosomatic Research

Review

Physiotherapy for functional (psychogenic) motor symptoms: A systematic review

Glenn Nielsen [a,*], Jon Stone [b], Mark J Edwards [c]

ARTICLE INFO

Article history:
Received 8 March 2013
Received in revised form 13 May 2013
Accepted 14 May 2013
Available online xxxx

Results: There was only one controlled intervention study with a historical control group and 28 case series or reports describing interventions. The total number of patients in all studies was 373. Physiotherapy most commonly occurred in the context of multidisciplinary treatment and involved a motor learning approach. Novel approaches included the use of distraction techniques and transcutaneous electrical nerve stimulation (TENS) machine. Deceptive behavioural techniques have also been described. Most studies reported benefit from physical treatment, including some studies with long-term follow up.

Conclusions: Patients with FMS are commonly encountered in neurological practice and are often referred for physiotherapy. The existing data to guide physiotherapy treatment for FMS is of low quality and limited in scope. However, it suggests potential positive effects and provides a useful resource for developing and testing physiotherapy interventions in future studies.

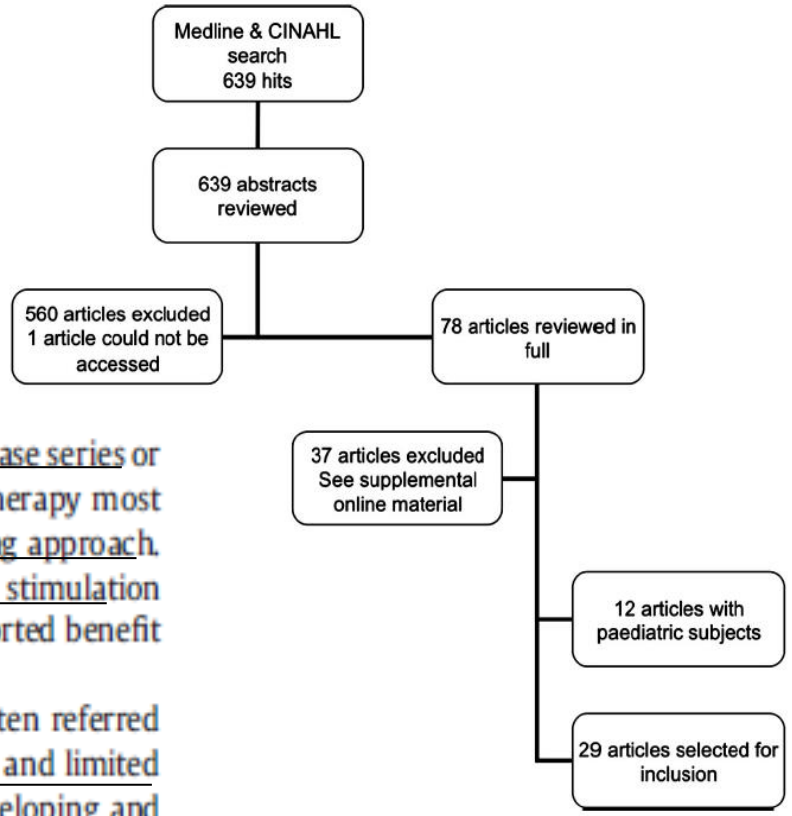
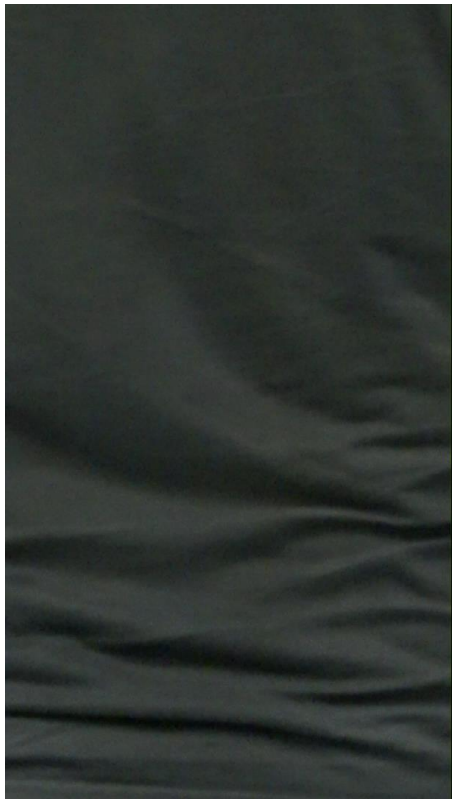


Fig. 1. Flow chart of Literature Search.

Movement Retraining: 5-day of treatment / 2 hours per day

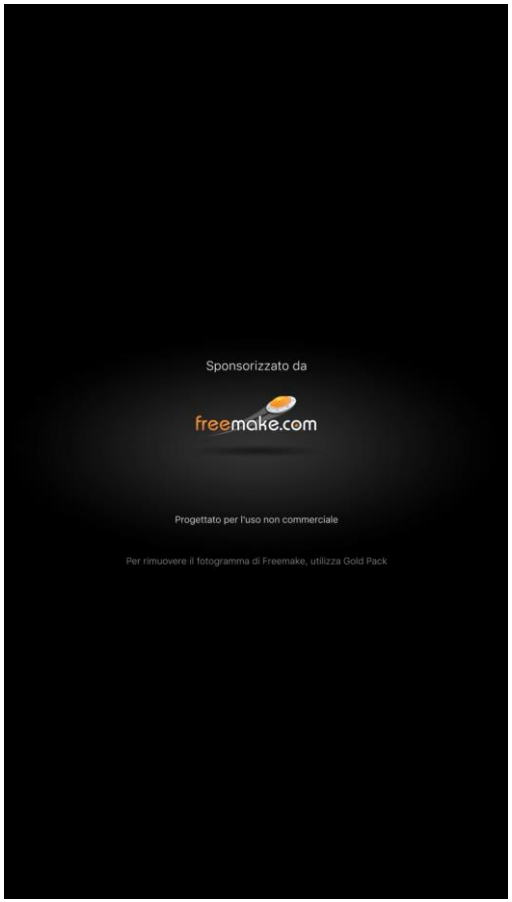


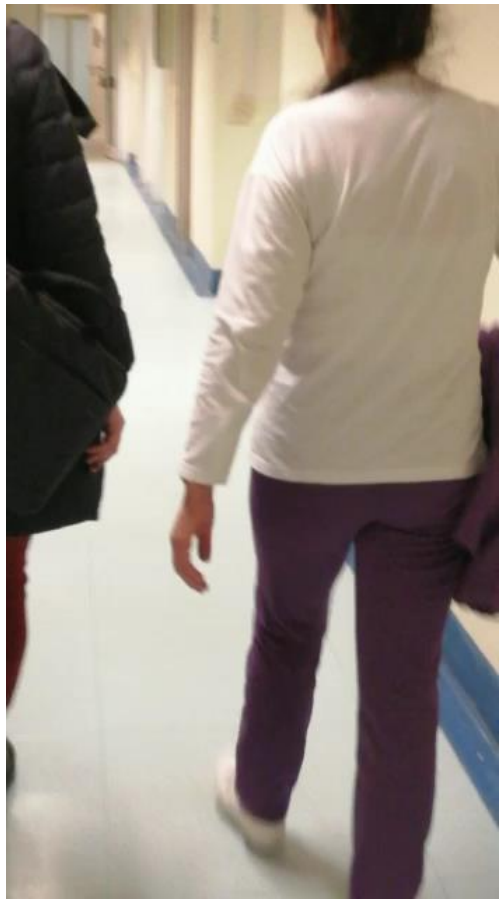
Knee-buckling gait

71 anni

Nel 2017 ictus ischemico capsulare sn con emiparesi dx a favorevole evoluzione

Dopo la dimissione comparsa di disturbi della marcia tipo knee-buckling e movimenti di estensione e flessione del tronco





J Neurol (2015) 262:674–681
DOI 10.1007/s00415-014-7631-1

ORIGINAL COMMUNICATION

Outcomes of a 5-day physiotherapy programme for functional (psychogenic) motor disorders

G. Nielsen · L. Ricciardi · B. Demartini · R. Hunter · E. Joyce · M. J. Edwards

NeuroRehabilitation xx (2021) x–xx
DOI:10.3233/NRE-201617
IOS Press

2021

Motor and non-motor outcomes after a rehabilitation program for patients with Functional Motor Disorders: a prospective, observational cohort study

Marialuisa Gandolfi, Marianna Riello, Veronica Bellamoli, Federica Bombieri, Christian Geroin, Ilaria A. Di Vico[1,*] and Michele Tinazzi[1,*]
Department of Neuroscience, Biomedicine and Movement, University of Verona, Italy

Motor and non-motor symptoms

Clinical scale *Subscale*	Admission (T0) Mean ± SD	5-days discharge (T1) Mean ± SD	3-month follow-up (T2) Mean ± SD	Friedman's Test X^2 statistic p value	Post hoc comparisons *P* value*
S-FMDRS (motor symptoms)	22.96 ± 10.70	12.60 ± 9.59	17.54 ± 11.75	$X^2(2) = 23.55$ **$p = 0.000$**	(a) **$p = 0.000$** (b) **$p = 0.006$** (c) $p = 0.065$
MFI (fatigue) *General*	16.61 ± 2.67	12.03 ± 4.02	14.94 ± 4.62	$X^2(2) = 25.107$ **$p = 0.000$**	(a) **$p = 0.000$** (b) $p = 0.058$ (c) **$p = 0.000$**
MFI (fatigue) *Physicial*	16.67 ± 3.29	11.45 ± 4.25	13.88 ± 4.79	$X^2(2) = 21.658$ **$p = 0.000$**	(a) **$p = 0.000$** (b) **$p = 0.006$** (c) **$p = 0.006$**
MFI (fatigue) *Reduced-activity*	14.39 ± 4.35	11.18 ± 4.47	12.30 ± 5	$X^2(2) = 18.171$ **$p = 0.000$**	(a) **$p = 0.000$** (b) $p = 0.053$ (c) $p = 0.108$
MFI (fatigue) *Reduced-motivation*	10.21 ± 3.63	9.21 ± 3.03	10.52 ± 3.52	$X^2(2) = 2.559$ $p = 0.278$	

Gait & balance

	Admission (T0)	3-month follow-up (T2)	Wilcoxon signed-rank test	
	Mean ± SD	Mean ± SD	Z score	*P* value* Effect size (r)
Gait speed (cm/s)	58.77 ± 5.2	82.52 ± 5.3	$z = -3.980$	**$p < 0.001$** $r = -0.69$
Cadence (step/min)	82.56 ± 4.6	97.46 ± 4.04	$z = -3.875$	**$p < 0.001$** $r = -0.67$
Stride length (cm)	81.21 ± 4.43	99.64 ± 4.17	$z = -3.980$	**$p < 0.001$** $r = -0.69$
Sway area (mm2)				
Eyes open	295.85 ± 84.91	114.57 ± 22.53	$z = -2.091$	**$p = 0.037$**
Eyes closed	649.57 ± 160.12	588.33 ± 357.79	$z = -1.680$	$p = 0.093$
Length of CoP displacement (mm)				
Eyes open	254.23 ± 40.04	169.47 ± 18.89	$z = -2.294$	**$p = 0.042$**
Eyes closed	395.14 ± 55.85	295.52 ± 49.08	$z = -2.294$	**$p = 0.022$** $r = -0.39$

Graded exercise and pacing of activity for those with chronic pain and fatigue

Gait & Posture 88 (2021) 286–291

Contents lists available at ScienceDirect

Gait & Posture

journal homepage: www.elsevier.com/locate/gaitpost

Motor dual task with eyes closed improves postural control in patients with functional motor disorders: A posturographic study

Marialuisa Gandolfi [a,1,*], Mirta Fiorio [a,1], Christian Geroin [a], Manlio Prior [b], Sergio De Marchi [c], Marianna Amboni [d,e], Nicola Smania [a], Michele Tinazzi [a,*]

[a] Department of Neurosciences, Biomedicine and Movement Sciences, University of Verona, Verona, Italy
[b] Angiology Unit, Azienda Ospedaliera Universitaria Integrata di Verona, Verona, Italy
[c] Department of Medicine, University of Verona, Verona, Italy
[d] Center for Neurodegenerative Diseases (CEMAND), Department of Medicine, Surgery and Dentistry "Scuola Medica Salernitana", University of Salerno, Italy
[e] IDC Hermitage-Capodimonte, Naples, Italy

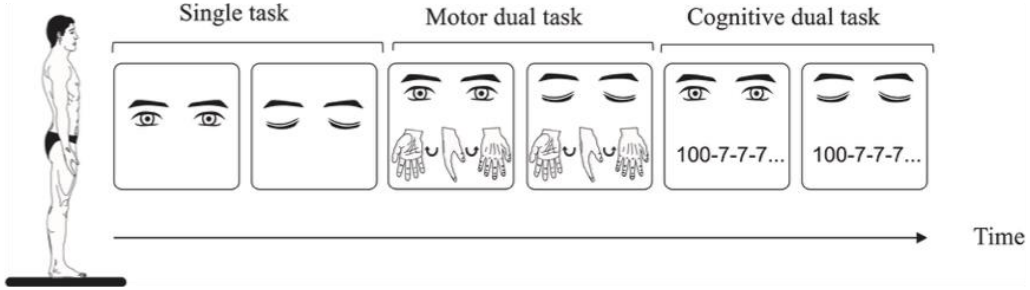
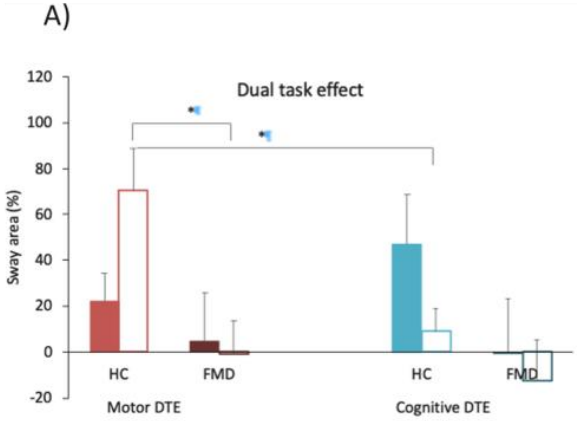


Fig. 1. Experimental set-up.



Parkinsonism and Related Disorders xxx (xxxx) xxx–xxx

2020

Contents lists available at ScienceDirect

Parkinsonism and Related Disorders

journal homepage: www.elsevier.com/locate/parkreldis

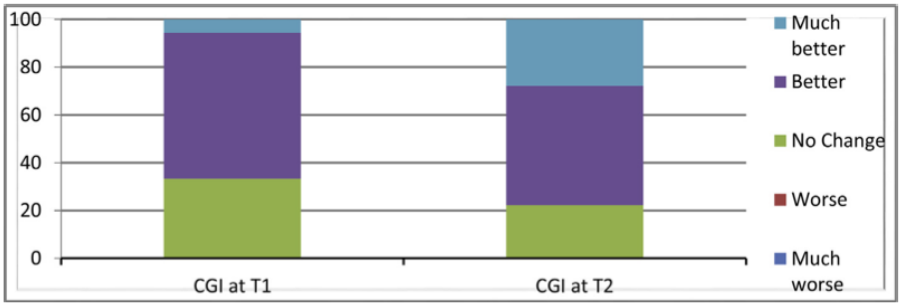
Short communication

A physical therapy programme for functional motor symptoms: A telemedicine pilot study

Benedetta Demartini[a,b,c,*], Federica Bombieri[d], Diana Goeta[a,b], Orsola Gambini[a,b,c], Lucia Ricciardi[e,1], Michele Tinazzi[d,1]

Materials and methods: eighteen patients were recruited. The programme consisted of 24 sessions: three face-to-face sessions (at week 0 (T0), 12 (T1) and 24 (T2)) and 21 tele-sessions. Each session included education, movement retraining exercises and development of a management plan. All patients underwent the following assessment at T0, T1 and T2: Psychogenic movement disorders rating scale (PMDRS), assessment of depression, anxiety, alexithymia and quality of life. Self-assessment of outcome (CGI) was recorded at T1 and T2.

On the **CGI improvement** was reported by **66,7% of patients at T1 and 77,8% at T2.** A significant improvement over the three time points was shown for PMDRS and for the following domains of the SF-36: general health, vitality, social functioning and mental health



2019 J Neurol Neurosurg Psychiatry:

Review

Systematic review of psychotherapy for adults with functional neurological disorder

Myles Gutkin [1,2] Loyola McLean [3,4] Richard Brown [5,6] Richard A Kanaan [1]

Table 2 Randomised controlled trials in motor functional neurological disorder over the past decade

Study	n	Description	Points
Botulinum neurotoxin			
Dreissen *et al*[44]	49	Randomised, double-blinded controlled trial of botulinum neurotoxin versus placebo (sterile saline) injections Duration and setting: two outpatient injections 3 months apart, followed by a 10-month open-label extension Outcome measures: CGI-clinician and CGI-patient rated; PMDRS; SF-36; AMC Linear Disability Score	At 4 months, there were no statistically significant differences between treatment arms across primary and secondary outcomes. However, improvement was observed across both treatment arms (56%–64%), suggesting a notable placebo effect. Across the length of the entire trial, 81% improved from baseline.
Vizcarra *et al*[45]	14	Randomised controlled trial of botulinum neurotoxin versus placebo (sterile saline) injections, followed by CBT Duration and setting: outpatient injection followed by 12 weeks of psychotherapy Outcome measures: PMDRS, Katz Index of Independence in ADLs, Lawton instrumental ADL	There were no differences in clinical outcomes at 12 weeks. While both treatment arms showed a tendency toward improvement, a statistically significant change from baseline was only observed in the placebo+CBT group.

Letter to the Editor

Psychotherapy and Psychosomatics

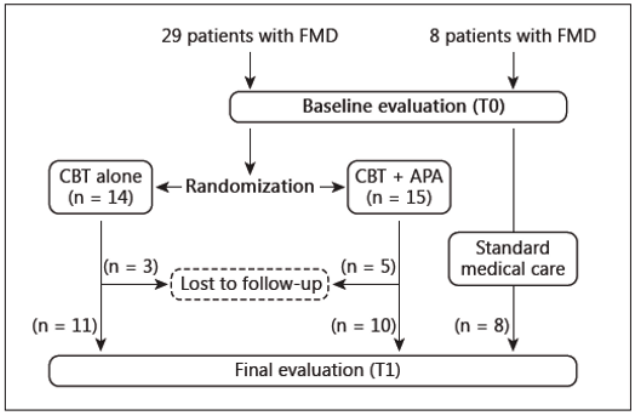
Received: November 30, 2015
Accepted after revision: May 6, 2016
Published online: October 15, 2016

Psychother Psychosom 2016;85:381–383
DOI: 10.1159/000446660

Cognitive Behavioural Therapy and Adjunctive Physical Activity for Functional Movement Disorders (Conversion Disorder): A Pilot, Single-Blinded, Randomized Study

Carlo Dallocchio[a], Michele Tinazzi[b], Federica Bombieri[b], Natale Arnó[a], Roberto Erro[b, c]

[a]Division of Neurology, Ospedale Civile, Voghera, and [b]Department of Neuroscience, Biomedicine and Movement Science, University of Verona, Verona, Italy; [c]Sobell Department of Motor Neuroscience and Movement Disorders, University College London (UCL) Institute of Neurology, London, UK



Trattamento Psicologico

•Quando i sintomi si manifestino in modo parossistico e in presenza di crisi dissociative.

•Terapia cognitivo comportamentale (TCC) è considerata una delle terapie più efficaci

•Tale approccio permette quindi di imparare a riconoscere i sintomi premonitori degli attacchi e applicare tecniche basate sulla distrazione (ad esempio contare all'indietro da 100 a 0 togliendo ogni volta 7, parlare con qualcuno, cantare la canzone preferita) che possano aiutare a prevenire o superare questi attacchi.

•Il trattamento psicologico è importante anche in presenza di comorbidità quali ansia e depressione.

TRATTAMENTO FARMACOLOGICO

- I farmaci **ANTIDEPRESSIVI** possono risultare efficaci **anche in assenza** di una sintomatologia ansioso/depressiva (*Voon e Lang 2005*)
- Occorre comunicare preventivamente al paziente i possibili effetti collaterali (nausea, etc.) e il ritardo nella comparsa degli effetti (qualche settimana)
- Ad esempio:
  - **dolore, insonnia: triciclici**
  - **Ipersonnia: *SSRI***
  - **Spasmi muscolari: *clonazepam***
- Considerare l'utilizzo dei *beta-bloccanti* nel trattamento dei disturbi somatici legati all'ansia

Semin Neurol 2019;39:102–114.

Functional (Psychogenic) Neurological Disorders: Assessment and Acute Management in the Emergency Department

Jordan R. Anderson, DO[1,2] Vihang Nakhate, BA[3] Christopher D. Stephen, MB ChB, MRCP[3]
David L. Perez, MD, MMSc[3,4]

Table 1 Clues in the history of a possible functional neurological disorder diagnosis

Historical elements	Comment
Temporal course of symptom evolution	• *Sudden onset*: often associated with a triggering event (such as physical injury, panic attack, medical procedure, medication side effect)
	• History of prior similar presentations with *spontaneous resolutions or recurrences*
Concurrent motor and panic-attack features	• Prodromal (warning) symptoms for onset including tachycardia, diaphoresis, dyspnea, and tremulousness, often without the affective experience of panic or fear
	• Dissociative symptoms (e.g., derealization, depersonalization)
Comorbid medical and psychiatric conditions	• Medical comorbidities: irritable bowel syndrome, chronic fatigue, fibromyalgia, and other chronic pain disorders
	• Neurological comorbidities: intellectual delay, mild traumatic brain injury, epileptic seizures, migraines
	• Psychiatric comorbidities: depression, anxiety (generalized anxiety disorder, panic disorder), posttraumatic stress disorder, and personality disorders (particularly clusters B and C); common but non-specific for a functional neurological disorder

Table 2 Specific neurological examination signs and semiological features for functional neurological disorders

Functional neurological sign	Comment
Functional weakness signs	
Hoover sign	Functional hip flexion: Absent contralateral hip extension when prompted to flex affected leg. Functional hip extension: Presence of hip extension in affected leg when prompted to flex unaffected leg (best interpreted by demonstrating that initial hip extension weakness on direct confrontation testing can be overcome (improved) by having the patient flex their contralateral leg
Collapsing/Give-way weakness	Full strength evident briefly on exam, but limb collapses from normal position thereafter; strength suddenly gives way to sudden collapse during testing. Caution in interpreting this sign in the presence of pain
Inconsistency	Motor performance of a muscle or muscle group varies between two tests, or between objective testing and observation of motor performance
Hemifacial overactivity	Unilateral orbicularis oris or oculus or platysma contraction, and jaw deviation often mimics an upper motor neuron pattern for facial weakness
Functional sensory signs	
Midline splitting	Hemisensory loss of entire body sharply demarcated at the midline, particularly on the trunk or forehead. Caution to not miss a possible thalamic lesion
Vibratory splitting	Vibratory sensory loss sharply demarcated at midline of the frontal bone or sternum
Nonanatomical sensory loss	Sensory loss not conforming to known neuroanatomical distributions, e.g., anterior truncal level without posterior truncal level, unilateral stocking/glove pattern
Inconsistency	Sensory symptoms fluctuate across serial exams
Functional movement disorder signs	
Tremor variability/ distractibility	Marked variability in frequency, rhythmicity, and pattern of movements; improvement, pauses in tremor or resolution with distraction or when attention directed away from affected limb
Tremor entrainment	Functional unilateral tremor adopts rhythmicity of unaffected limb during paced volitional movements of unaffected limb
Knee buckling	Knees buckle with standing or ambulation, rarely leading to falls
Astasia-abasia	Markedly exaggerated compensatory and uneconomical movements, often with flailing arms appearing to be unstable, however, demonstrating significant degrees of preserved coordination
Dragging monoplegic gait	Patient with unilateral leg weakness drags leg behind them like inanimate object, often with internally or externally rotated foot
Psychogenic nonepileptic seizure semiologic features	
Long duration	Duration over 2 min. Use with caution, as alternative is status epilepticus
Fluctuating course	Intervening pauses, waxing/waning event tempo
Specific ictal movements or characteristics	Asynchronous or side-to-side movements, pelvic thrusting (can also be seen in frontal lobe seizures), ictal crying
Eye closure	Often against resistance of examiner
Increased ictal awareness	Postictal recall of information presented ictally
Postictal features	Absence of postseizure confusion
Response to external stimuli	Bystanders may be able to alleviate or intensify the ictal event

Acknowledgements

FMDs ITALIAN REGISTRY

WORKING GROUP VERONA

Francesca Morgante

Roberto Erro

Gianni Defazio

Enrico Marcuzzo, Mara Zenorini

CHRISTIAN GEROIN

Acknowledgements

FMDs ITALIAN REGISTRY WORKING ITALIAN GROUP