Universitätsspital Basel

PARKINSON TEAM BASEL

Psychogene Bewegungsstörungen in der Neurologie – immer noch ein Rätsel!

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Gliederung

1. Epidemiologie
2. Nosologie
3. Neuere Konzepte
4. Diagnostik
5. Diagnostik und Therapie
6. Exkurs: Psychogene epileptische Anfälle
7. Therapieverfahren im Vergleich
8. Neuere Pathophysiologie und Psychopathologie
9. Zusammenfassung

1. Epidemiologie

- 2 bis 20% abhängig von klinischem Schwerpunkt der jeweiligen Abteilung
- Keine verlässlichen epidemiologischen Daten
- Kommt weltweit vor
- Kulturelle Ausformungen möglich: „Besessenheit, Fluch…'' etc.

2.Nosologie

- DSM IV (Psychogene Bewegungsstörung, Konversionstörung, funktionelle Störung)
- DSM V (Terminologie bleibt gleich)
- Änderung: keine Ausschlussdiagnose mehr, aber: positiv diagnostiziert
- Keine hohe Relevanz von bewussten oder unbewussten Konflikten
- Frühkindliche Traumatisierung relevant (?)

3. Neuere Konzepte

Functional movement disorders

Anita Barbey and Selma Aybek

Purpose of review
The review highlights the clinical presentation of functional movement disorders (FMDs) and presents current evidence on bedside signs and paraclinical tests to differentiate them from other neurological disorders.

Recent findings
FMDs are diagnosed by the presence of positive clinical signs as emphasized in the new Diagnostic and Statistical Manual of Mental Disorders-5 classification criteria. Bedside signs are numerous, and a subset of them has been validated in controlled studies. This review summarizes evidence from the literature on specificity and sensibility of positive clinical signs for FMDs. The value of rule-in paraclinical tests to confirm the diagnosis is also presented. Recent developments in neuroscience with pathophysiological mechanisms and current treatment strategies are also discussed.

Summary
FMDs represent a field of neurology that is currently rapidly growing in terms of research. Clinicians should be aware that highly reliable signs exist for the diagnosis and that early multidisciplinary treatment should be offered.

Keywords
functional movement disorders, pathophysiology, positive clinical signs, treatment

3. Neuere Konzepte

KEY POINTS

- FMDs are defined as abnormal involuntary movements that are incongruent with a known neurologic cause and neuroanatomy.
- Diagnosis should rely on the presence of positive clinical characteristics.
- Psychopathology is not always evident but psychological factors are important risk factors and/or maintaining factors.
- Functional movement disorders must be distinguished from simulating.
- Cerebral dysfunction can be objectified by fMRI.
- Therapeutic approach should be multidisciplinary, involving both physical therapy and psychiatric care.

3. Neuere Konzepte

Table 1. Clinical features of functional movement disorders (FMDs)

	Features suggesting FMD	Features suggesting organic disorder	Complementary examinations
Dystonia	Inconsistency in localization and severity over time	Geste antagoniste	
	Sudden onset	Progressive onset	
	Fixed posture at rest		
	Fixed postures at onset		
	Prompt resolution after botox/suggestion		
Torticollis	Predominant laterocollis with ipsilateral shoulder elevation and contralateral shoulder depression		
	Prompt resolution after botox		
Foot dystonia	Nonexercise-induced		
	Nonparoxysmal		
Hand dystonia	Spared pincer function (dystonia Dig. II–IV)	Involvement Dig I–II	
Facial movement disorders	Eyebrow rising contralateral to closed eye	Babinskis 'other' sign: narrowing of eyelid fissure and ipsilateral frowning/ elevation of the eyebrows during eyelid spasms	
	Lip-pulling sign	Tongue deviation ipsilateral to facial weakness	
	Resistance to passive lid opening	Persistence during sleep	
	Tongue deviation contralateral to facial weakness		
	Absence during sleep		
Tic	Adult onset, absence of tics in childhood	Perceived as intentional movement (release inner tension)	
	Lack of premonitory sensations,	Premonitory sensation	
	Inability to suppress movements		
	Perceived as involuntary		

3. Neuere Konzepte

Tremor	Distractibility	Constant frequency-peak	ENMG
	Variability (amplitude/frequency, localization, direction)	Rhythmic, nondistractible	
	Entrainment	Cave: irregular dystonic tremor	
	Whack a mole sign		
Parkinsonism	Bradykinesia without decrement in amplitude	Cogwheel, increasing with distraction	DAT scan
	Resistance without cogwheel, decreasing with distraction maneuvers	Bradykinesia with decrement in amplitude	
	Tremor variable, diminishing during walking	Re-emergent tremor	
		Tremor increasing during walking	
Myoclonus	Axial myoclonus	Short lasting	ENMG: inconsistent pattern, >700 ms
	Too slow/complex for organic myoclonus		EEG: Bereitschaftspotential (Backaveraging)
	Spinal myoclonus with coexistence of facial movements/vocalizations		
	Distractibility, entrainment		
Gait	Uneconomic postures: knee buckling, astasia-abasia, 'tightrope walking', 'walking on ice'	Enhancement with distraction	
	Exaggerated compensatory maneuvers		
	Huffing and puffing		
	Improvement with distraction		

DAT, Dopamine transporter scan; EEG, Electroencephalogram; ENMG, Electroneuromyography.

3. Neuere Konzepte

Parkinsonism and Related Disorders 22 (2016) S153–S158

Contents lists available at ScienceDirect

Parkinsonism and Related Disorders

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

Electrophysiological evaluation of psychogenic movement disorders

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ARTICLE INFO

Article history:
Received 31 August 2015
Accepted 3 September 2015

Keywords:
Psychogenic
Movement disorder
Tremor
Myoclonus
Dystonia
Electrophysiology

ABSTRACT

Psychogenic movement disorders (PMD) include a group of neurological symptoms which cannot be explained by any organic syndrome. The diagnosis of PMD is challenging for both neurologist and psychiatrist. Electrophysiological examination is a useful tool to evaluate and support a diagnosis PMD. It includes a set of tests which are chosen appropriate to the clinical setting that provides objective criteria for the diagnosis of PMD. The various tests available include accelerometry, surface electromyography, electroencephalography, jerk locked back averaging and pre-movement potentials, somatosensory evoked potentials, transcranial magnetic stimulation (TMS) etc. Electrophysiologically psychogenic tremors display features of variability, entrainability, coactivation, distractibility and increase in the amplitude and frequency on mass loading. Movement related cortical potentials such as Bereitschaft-spotential is seen in psychogenic myoclonus. Presence of triphasic contraction of muscles and absence of co-contraction suggests psychogenic myoclonus. Latency of C-reflex is longer in psychogenic myoclonus as compared to organic myoclonus. The role of TMS to differentiate psychogenic from organic dystonia is still not clear. In conclusion, electrophysiological tests are most useful for tremor, followed by jerks and least for dystonia. In patients with long-standing PMD or those with mixed pathology, electrophysiological tests may not be very useful.

3. Neuere Konzepte

Table 1
Electrophysiological tools in the evaluation of psychogenic movement disorder (PMD).

Type of PMD	Electrophysiological tool	Parameters evaluated
Psychogenic tremor	Multichannel surface electromyography (EMG) with accelerometry	Frequency, duration and pattern of EMG bursts, variability, distractibility, entrainability, effect with mass loading, co-activation sign, coherence analysis
Psychogenic myoclonus	Multichannel surface EMG	Frequency, duration and pattern of EMG bursts, progression of EMG activity, reflex latency
	Jerk-locked-back averaging	Bereitschaftspotential
	Electroencephalography	Cortical potentials
	Somatosensory evoked potentials	Giant potentials, sensory attenuation
	Long loop reflexes	C-reflex latency
Psychogenic dystonia	Multichannel surface EMG	EMG pattern, co-contraction phenomenon
	Transcranial magnetic stimulation	Short interval intracortical inhibition, long interval intracortical inhibition, cortical silent period

3. Neuere Konzepte

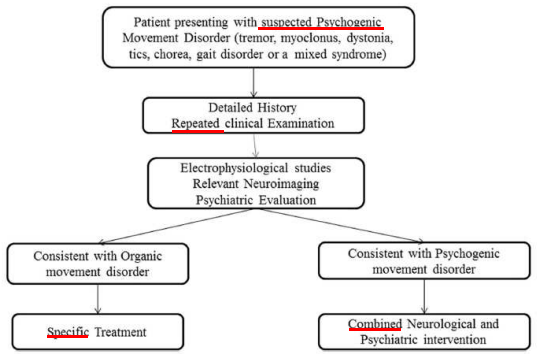


Fig. 2. Algorithm for management of a patient with suspected psychogenic movement disorder.

3. Bereitschaftspotential

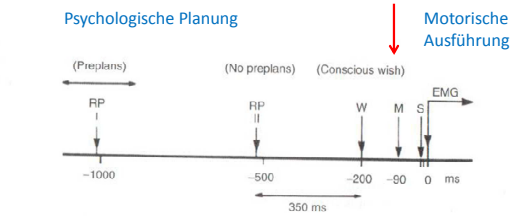


Figure 22.1 Timing of subjective events and the Bereitschaftspotential (readiness potential, RP) with data from Libet et al. (1983). RP1 is the onset of the Bereitschaftspotential with ordinarily voluntary movements and RP2 is the onset with movements made quickly with little forethought. W, the subjective timing of the will to move; M, the subjective timing of the onset of movement; S, the timing of a shock to the finger. Electromyogram (EMG) onset is set at 0 ms. (From Libet et al. Readiness-potentials preceding unrestricted "spontaneous" vs. preplanned voluntary acts. *Electroencephalogr Clin Neurophysiol*. 1982;54:322–335.)

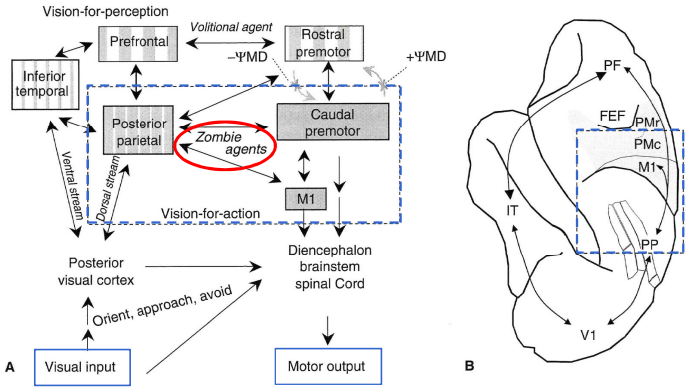
3. Pitfall

Vorhandensein von BP als Diagnostikum

- Psychogene TICS : 86 % positives Bereitschaftspotential
- Organische TICS : 43 % positives Bereitschaftspotential

- Diagnostische Wertigkeit?

3. Neuere Konzepte



Hallett, M. et al. (Ed.) 2006

4. Diagnostik

Movement Disorders
Vol. 20, No. 12, 2005, pp. 1592–1597

Rating Scale for Psychogenic Movement Disorders: Scale Development and Clinimetric Testing

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Abstract: We developed and tested the clinimetric properties of a scale for psychogenic movement disorders (PMDs). PMDs are disabling but lack any generally accepted treatment strategies. To develop treatments, means of assessing disease severity must be provided. No scale to assess PMDs existed. The PMD scale developed here rates 10 phenomena (rest tremor, action tremor, dystonia, chorea, bradykinesia, myoclonus, tics, athetosis, ballism, cerebellar incoordination), 2 functions (gait, speech), and 14 body regions. To study interrater agreement, three movement disorder neurologists independently rated 88 videotapes of PMD patients. Data analysis was performed using a kappa coefficient of agreement, Kendall's coefficient of concordance, Spearman correlations, and intraclass correlation coefficients. Validity and scale responsiveness were tested as well. All phenomena and speech and gait dysfunction occurred in the patient sample. A wide range of affected body regions, severity, and incapacitation was captured. Ratings showed excellent interrater reliability for presence or absence of each phenomenon (κ range, 0.63 to 0.86). Kendall's concordance coefficients for phenomenology, function, and total PMD scores were 0.92, 0.93, and 0.91. Spearman correlations between raters ranged from 0.86 to 0.90. The scale was responsive to changes that occurred as a result of a neuropsychiatric intervention. The PMD scale adequately captures the complex movements of PMDs and can be used to assess PMDs and test the efficacy of intervention strategies. © 2005 Movement Disorder Society

Key words: psychogenic movement disorders; rating scale; clinimetric testing

4.Diagnostik

Part 1: Phenomena

	Rest tremor	Action tremor	Dystonia	Chorea	Brady-kinesia	Myoclonus	Cerebellar	Ballism	Athetosis	Tics
Upper face										
Lips/perioral										
Jaw										
Tongue										
Neck										
Head										
Left shoulder										
Right shoulder										
Left UE										
Right UE										
Left LE										
Right LE										
Trunk										
Other region										
Global severity										
Duration factor										
Global incapacitation										

Part 2: Functions

	Gait disorder	Speech disorder
Severity		
Duration factor		
Incapacitation		

Part 3: Total Scores

1. Total Phenomenology Score	
2. Total Function Score	
3. Total Psychogenic Movement Disorder Score (1+2)	

Severity
0 – none
1 – minimal
2 – mild
3 – moderate
4 – severe

Duration factor
0 – none
1 < 25% of the time
2 - 25-50% of the time
3 - 50-75% of the time
4 > 75% of the time

Incapacitation
0 – none
1 – minimal
2 – mild
3 – moderate
4 - severe

FIG. 1. Psychogenic movement disorders scale.

Hinson Rating Scale (2005)

5.Diagnostik und Therapie

Aus der Klinik und Poliklinik für Psychosomatik und Psychotherapie
der Universität zu Köln
Leiter: Privatdozent Dr. med. C. Albus

Klinische Charakteristika, Diagnostik, Therapie und Prognose der psychogenen Bewegungsstörungen – eine systematische Literaturübersicht

Inaugural-Dissertation zur Erlangung der Doktorwürde
Der Hohen Medizinischen Fakultät
der Universität zu Köln

vorgelegt von
David Geronimo Hoffmann
aus Bergisch Gladbach

Promoviert am 22. Februar 2012

5.Diagnostik und Therapie

Oxford Centre for Evidence-based Medicine – Levels of Evidence

Tab. 1 Oxford Centre of Evidence-based Medicine Levels of Evidence (Mai 2001) [122]

Level	Therapie/Prävention, Ätiologie/ Nebenwirkungen	Prognose	Diagnose	Differential Diagnose/ Symptom Prävalenzstudie	Ökonomische- und Entscheidungsanalyse
1a	**Systematischer Review (SR)** (mit Homogenität von Randomisiert-kontrollierten Studien (RCTs)	**SR** (mit Homogenität*) der eingeschlossenen Kohortenstudien; Klinische Entscheidungsfindung (CDR†) validiert in verschiedenen Populationen	**SR** (mit Homogenität*) der Level 1 diagnostischen Studien; CDR† mit 1b Studien von verschiedenen klinischen Zentren	**SR** (mit Homogenität*) von prospektiven Kohortenstudien	**SR** (mit Homogenität*) von Level 1 ökonomischen Studien
1b	**Einzelner RCT** (mit engem Konfidenzintervall‡)	**Einzelne Kohortenstudie** mit ≥ 80 % Nachbeobachtungsrate; CDR† validiert in einer einzelnen Population	**Validierungs-** Kohortenstudie** mit gutem††† Referenzstandard; oder getesteter CDR† in einem klinischem Zentrum	**Prospektive Kohortenstudie** mit guter Nachbeobachtungsrate****	Analyse basiert auf klinisch sinnvollen Kosten oder Alternativen; systematische(r) Review(s) der Evidenz; und Einbeziehung einer Sensitivitätsanalyse
1c	Alle oder keiner §	Alle oder keiner Fallserie	Absolute SpPins und SnNouts††	Alle oder keiner Fallserie	Absolute ökonomische Kosten-Nutzen-Analyse ††††
2a	**SR** (mit Homogenität*) der **Kohortenstudien**	**SR** (mit Homogenität*) von entweder **retrospektiven Kohortenstudien** oder unbehandelten Kontrollgruppen in RCTs	**SR** (mit Homogenität*) von Level > 2 **diagnostischen Studien**	**SR** (mit Homogenität*) von 2b und besseren Studien	SR (mit Homogenität*) von Level > 2 ökonomischen Studien
2b	**Einzelne Kohorten Studie** (eingeschlossen RCT mit schlechter Qualität; z.B. < 80 % Nachbeobachtungsrate)	**Retrospektive Kohortenstudie** oder Nachbeobachtungsrate von unbehandelten Kontrollpatienten in einem RCT; Ableitung einer CDR† oder lediglich validiert bei einem Teil der Stichprobe§§§	**Explorative** Kohortenstudie** mit gutem ††† Referenzstandard; CDR† nach Derivation oder lediglich validiert bei einem Teil der Stichprobe§§§ oder Basisdaten	**Retrospektive Kohortenstudie,** oder geringe Nachbeobachtungsrate	Analyse basiert auf klinisch sinnvollen Kosten oder Alternativen; begrenzte(r) Review der Evidenz, oder einzelne Studie; und Einschluss multi-variabler Sensitivitätsanalyse
2c	**Ergebnisforschung; Ökologische Studien**	**Ergebnisforschung**		**Ökologische Studien**	Audit oder Ergebnisforschung

5.Diagnostik und Therapie

3a	**SR** (mit Homogenität*) von **Fall-Kontroll-Studien**		**SR** (mit Homogenität*) von 3b und besseren Studien	**SR** (mit Homogenität*) von 3b und besseren Studien	**SR** (mit Homogenität*) von 3b und besseren Studien
3b	**Einzelne Fall-Kontroll Studie**		**Nicht-konsekutive Studie;** oder ohne Konsistenz der angewendeten Referenzstandards	**Nicht-konsekutive Kohortenstudie** oder sehr limitierte Population	Analyse basiert auf limitierte Alternativen oder Kosten, qualitativ schlechte Berechnung der Daten, aber Einschluss der Sensitivitätsanalyse mit klinisch relevanten Variationen.
4	**Fall-Serie** (und qualitative schlechte Kohorten- und Fall-Kontroll-Studien)	**Fall-Serie** (und qualitative schlechte prognostische Kohortenstudien)	**Fall-Kontrolle Studie,** schlechte oder nicht unabhängige Referenzstandards	**Fall-Serie** oder veralteter Referenzstandard	Analyse ohne Sensitivitätsanalyse
5	**Expertenmeinung** ohne kritische Analyse oder basiert auf physiologischer oder experimenteller Forschung oder »Grundprinzipien«	**Expertenmeinung** ohne kritischer Analyse oder basiert auf physiologischer oder experimenteller Forschung oder »Grundprinzipien«	**Expertenmeinung** ohne kritische Analyse oder basiert auf physiologischer oder experimenteller Forschung oder »Grundprinzipien«	**Expertenmeinung** ohne kritische Analyse oder basiert auf physiologischer oder experimenteller Forschung oder »Grundprinzipien«	Expertenmeinung ohne kritische Analyse oder basiert auf ökonomischer Theorie oder »Grundprinzipien«

5.Diagnostik und Therapie

Tab. 4.2 Studienübersicht: *Pathophysiologie der psychogenen Bewegungsstörungen: neurophysiologische Phänomene*

Autoren	Stichprobe	Design	Methodik	Ergebnisse/Kernaussage
Prospektive Studien				
Terada et al. 1995 [150] Level 3b	6 Patienten mit psychogenem Myoklonus	Querschnittsstudie; keine Kontrollgruppe; keine Verblindung angegeben	Jerk-locked back averaging	5 Patienten zeigten Bereitschaftspotenzial vor myoklonischer Zuckung und nicht vor intentionaler Zuckung
Raethjen et al. 2004 [125] Level 3b	15 Patienten mit psychogenem Tremor beider Hände	Querschnittsstudie; keine Kontrollgruppe, keine Verblindung angegeben	Messung des posturalen Tremors; Vergleich der beiden Körperhälften mittels Kohärenzanalyse	7 Patienten zeigten signifikante Kohärenz zwischen den beiden Händen, 8 Patienten zeigten keine Kohärenz
Kumru et al. 2004 [81] Level 3b	7 Patienten mit psychogenem Tremor, 11 Patienten mit Parkinson und 10 Patienten mit essentiellem Tremor	Querschnittsstudie mit Kontrollgruppe; Kontrollgruppe gesund; nicht adjustiert; keine Verblindung angegeben	Messung von Frequenz und Amplitude des Tremors bei kontralateralen, ballistischen Bewegungen	Vorübergehendes Sistieren des psychogenen Tremors bei kontralateralen Bewegungen; kein Sistieren bei parkinsonschem oder essentiellem Tremor

5.Diagnostik und Therapie

Espay et al. 2006 [38] Level 3b	10 Patienten mit diagnostizierter unilateraler psychogener Dystonie und 8 Patienten mit organisch bedingter Dystonie	Querschnittsstudie mit Kontrollgruppe; Kontrollgruppe gesund, altersadjustiert; keine Verblindung angegeben	Messung von kortikaler Hemmung, intrakortikaler Hemmung bei kurzen und langen Stimulusintervallen, kortikaler „silent period", reziproker spinaler Hemmung des Unterarms; Vergleich psychogene Dystonie vs. organisch bedingte Dystonie	Psychogene Dsytonie und organisch bedingte Dystonie zeigten ähnliche neurophysiologische Besonderheiten
Kumru et al. 2007 [82] Level 3b	6 Patienten mit psychogenem Tremor, 9 mit M. Parkinson und unilat. Tremor, 11 mit essentiellem Tremor	Querschnittsstudie mit Kontrollgruppe; Kontrollgruppe gesund mit 10 Probanden; nicht adjustiert; keine Verblindung angegeben	Messung der Reaktionszeit in Ruhe und bei Tremorbewegung der kontralateralen Hand	Signifikante Abnahme der Reaktionszeit bei kontralateraler Tremorbewegung bei Kontrollgruppe und Patienten mit psychogenem Tremor im Vergleich zu Patienten mit essentiellem Tremor oder parkinsonschem Tremor

5.Diagnostik und Therapie

Tab. 4.4 Studienübersicht: *Bildgebende Verfahren*

Autoren	Stichprobe	Design	Methodik	Ergebnisse/Kernaussage
Prospektive Studien				
Stone et al. 2007 [140] Level 3b	4 Patienten mit unilateraler motorischer Konversionsstörung des Fußgelenks; 4 gesunde, die gleiche Störung simulierende Patienten	Kontrollierte Querschnittsstudie; Kontrollgruppe nicht adjustiert; keine Verblindung angegeben	Funktionelle Magnetresonanztomografie (fMRIT)	Patienten mit unilateraler Schwäche bei motorischer Konversionsstörung zeigen ein bestimmtes Muster neuronaler Aktivierung, das teilweise mit denen simulierender Patienten übereinstimmt, teilweise jedoch auch verschieden ist

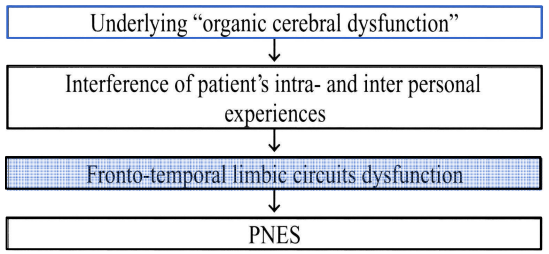
5.Diagnostik und Therapie

Tab. 4.19 Studienübersicht: *Psychogene Bewegungsstörungen und Lebensqualität*

Autoren	Stichprobe	Design	Methodik	Ergebnisse/Kernaussage
Prospektive Studien				
Anderson et al. 2007 [4] Level 3b	66 Patienten mit psychogenen Bewegungsstörungen; 704 Patienten mit Parkinsonismus	Querschnittsstudie; keine Verblindung angegeben	OARS; SF-12v2 Health Survey; BSI-18	Patienten mit psychogenen Bewegungsstörungen erlebten signifikant stärkere Einschränkungen in Bezug auf das geistige Wohlbefinden sowie Disstress, Angststörung, Depression und Somatisierungsstörungen

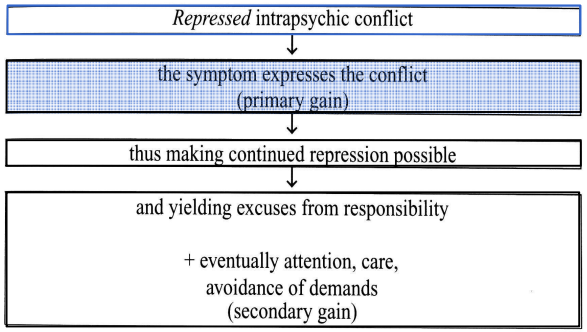
Insgesamt sowohl diagnostisch als auch therapeutisch geringer Evidenzlevel

6. Exkurs: Psychogene epileptische Anfälle (PNES)



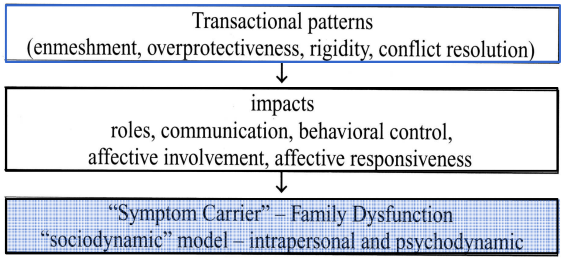
Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

6. Exkurs: Psychogene epileptische Anfälle (PNES)



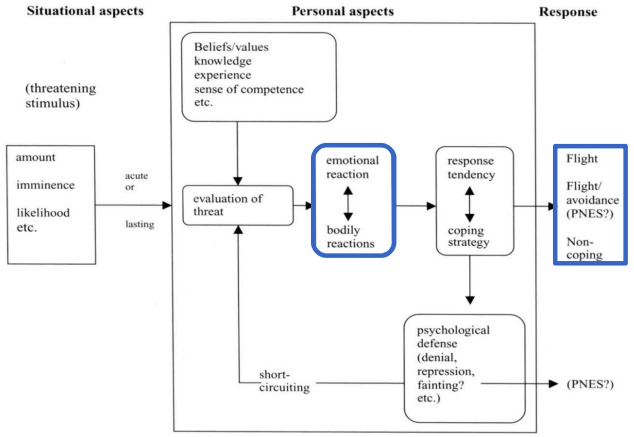
Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

6. Exkurs: Psychogene epileptische Anfälle (PNES)



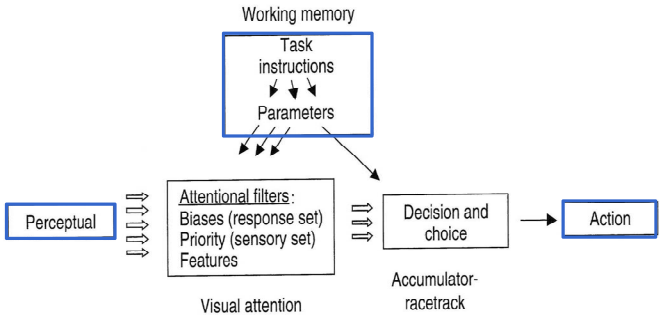
Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

6. Exkurs: Psychogene epileptische Anfälle (PNES)



Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

6. Exkurs: Psychogene epileptische Anfälle (PNES)



Hallett, M. et al. (Ed.) 2006

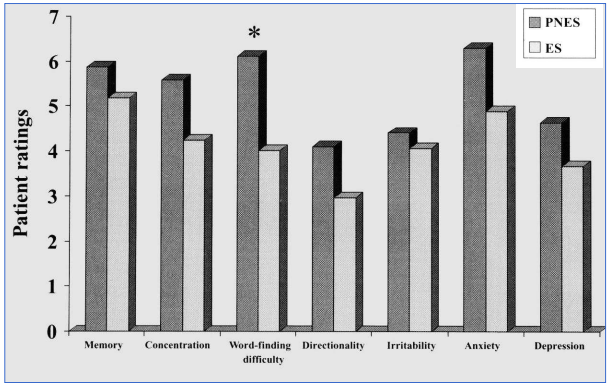
6. Exkurs: Psychogene epileptische Anfälle (PNES)

- 1.8 mal häufiger pathologische EEG-Befunde bei PNES als bei Normalbevölkerung
- 12% Spikes oder Spike-Waves
- Borderline PS → pathologisches EEG
- CK – Anstieg (?)
- Prolaktinanstieg (?)

CAVE: Patienten in neuroleptische Behandlung

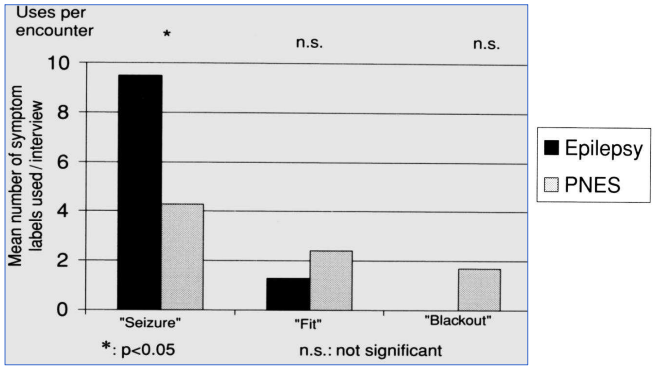
Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

6. Exkurs: Psychogene epileptische Anfälle (PNES)



Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

6. Exkurs: Psychogene epileptische Anfälle (PNES)



Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

7. Therapieverfahren im Vergleich

- Keine empirisch gesicherte Überlegenheit eines Therapieverfahrens
- Outcome insgesamt mässig bis schlecht
  - 30-40% stabil anfallsfrei
  - 30-40% Verbesserung
  - 30-40% schlechter Verlauf
- Keine eindeutigen Marker für positiven oder negativen Verlauf
- Favorisiert: CBT

7. Therapieverfahren im Vergleich

Diagnosis and Treatment of Functional (Psychogenic) Parkinsonism

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Semin Neurol 2017;37:228–232.

Abstract

Functional (psychogenic) parkinsonism (FP) is recognized by the mandatory combination of marked slowness without progressive decrement on repetitive manual tasks and variable resistance against passive movements in the absence of cogwheel rigidity. Other functional phenotypes, such as functional tremor and functional gait impairment, may coexist. Although neither necessary nor sufficient for the diagnosis of FP, supportive historical clues include the sudden onset of symptoms and absent or nonphysiologic response to levodopa. In selected cases where examination features remain insufficient to render a clinically definite FP diagnosis, normal dopaminergic transporter imaging (DAT scan) confirms "laboratory supported" FP. The management of FP begins with diagnostic debriefing, as the full acceptance of the diagnosis is critical in ensuring patient involvement in individualized psychoeducation, psychotherapy, and physical and occupational therapy.

Keywords
- functional parkinsonism
- functional movement disorders
- psychogenic movement disorders
- DAT scan

7. Therapieverfahren im Vergleich

CrossMark JMD
https://doi.org/10.14802/jmd.16038 / J Mov Disord 2017;10(1):40-44
pISSN 2005-940X / eISSN 2093-4939

ORIGINAL ARTICLE

Psychodynamic Psychotherapy for Functional (Psychogenic) Movement Disorders

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ABSTRACT

Objective As the literature for the treatment of functional (psychogenic) movement disorders (FMD) is sparse, we assessed clinical outcomes in patients with FMD who underwent treatment with psychodynamic psychotherapy (PDP).

Methods A retrospective analysis of the data of patients with FMD who were referred for PDP from 2008–2014 at Emory University Medical Center was performed.

Results Thirty patients were included, mean age at presentation was 50 years (SD 13.9) and majority were female (27/30). Most common movement disorder was involuntary shaking/jerky movements (50%) and tremor (43%). Mean duration of symptoms was 3.2 years and mean number of PDP visits was 4.9. PDP lead to good outcomes in 10, modest in 8, and poor in 9. Three patients lost to follow up. Mean duration of symptoms between two groups (good vs. poor) was not statistically significant ($p = 0.11$), mean number of PDP visits showed a trend towards significance ($p = 0.053$). In all cases of good outcomes precipitants of the movement disorder were identified and a majority (60%) was receptive of the diagnosis and had good insight.

Conclusion PDP lead to improvement in 60% of the patients which is encouraging as the treatment is challenging. This study supports heterogeneous causes of FMD including varied roles of past/recent events and demonstrates importance of psychological approaches such as PDP. Treatment with PDP should be considered in some patients with FMD but predicting who will respond remains a challenge. Further long term prospective studies with large sample size and placebo control are needed.

Key Words Psychodynamic psychotherapy; psychogenic movement disorders; functional disorders; conversion disorders.

7. Therapieverfahren im Vergleich

Interview phase	Inquiries	Approximate duration
'Open' phase	*What were your expectations when you came to the hospital?*	10 mins
Elicited seizure episode accounts	*Can you tell me about the first seizure you can remember?* *Can you tell me about the last seizure you can remember?* *Can you tell me about the worst seizure you can remember?*	10 mins
'Challenge' phase	Inquiry or inquiries challenging the patient's description	5 mins
Topic shift	*Can you tell me about things which you enjoy doing?*	5 mins

Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

7. Therapieverfahren im Vergleich

FAD ratings of the family

	The A family FAD score	Healthy/unhealthy cutoff score
Problem Solving	2.75	2.20
Communication	2.89	2.20
Roles	2.90	2.30
Affective Responsiveness	2.75	2.10
Affective Involvement	2.50	2.20
Behavior Control	2.11	1.90
General Functioning	2.92	2.00

Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

7. Therapieverfahren im Vergleich

- OPD (Operationalisierte Psychodynamische Diagnostik)
- "massgeschneiderte", aufdeckende Therapie
- Reaktion auf die Diagnosemitteilung:
  - Erleichterung
  - Erstaunen
  - Skepsis
  - Verwirrung
  - Verleugnung
  - Ärger / Wut
- Diagnosemitteilung: Charakter einer Deutung

Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

7. Therapieverfahren im Vergleich

- Therapeutische Beziehung:
  - ambivalent
  - fordernd
  - mit Enttäuschung verbunden
  - aggressive Gegenübertragung provozierend
- Patienten werden oft als
  - mühsam
  - befremdlich
  - lästig
  - simulierend empfunden

Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

7. Therapieverfahren im Vergleich

- Hohe Suggestibilität bei PNES Patienten
- Gabe von "Prokonvulsin"
  (farbige Infusionslösung)
- Ethisch jedoch umstritten

Gates and Rowans', Nonepileptic Seizures (3rd Ed.), 2010

7. Therapieverfahren im Vergleich

Workshop

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

Received: 27 November 2014 / Revised: 22 December 2014 / Accepted: 24 December 2014 / Published online: 4 January 2015

Abstract Patients with functional motor disorder (FMD) are commonly seen by physiotherapists and there is growing evidence to support a physical rehabilitation approach. There are, however, few descriptions in the literature of the content of successful physiotherapy treatment. This prospective cohort study reports the practicalities and outcomes of a pilot 5-day physiotherapy programme. Patients were referred from a specialist movement disorders clinic. The treatment consisted of education and movement retraining, with a long-term self-management focus. Education and movement retraining was based on a pathophysiological model for FMD that stresses the importance of self-focussed attention and illness belief. Patients were assessed at baseline, end of treatment and 3-month follow-up. 47 patients completed the programme, mean symptom duration was 5.5 years, 64 % were unemployed due to ill health. At the end of treatment, 65 % rated their symptoms as "very much improved" or "much improved", this reduced to 55 % at 3 months. At follow-up, there was a significant improvement in physical domains of the SF-36, Berg Balance Scale and 10 Metre Timed Walk. Measures of mental health did not change. This prospective cohort study adds to the growing evidence that supports the use of specialist physiotherapy treatment for FMD. Improvements here were made despite the cohort having characteristics associated with poor prognosis. We argue that specific treatment techniques are important and have the potential to improve physical function, quality of life and may prove to be a cost-effective treatment for selected patients with FMD.

Keywords Functional · Psychogenic · Physiotherapy · Rehabilitation

8. Neure Pathophysiologie und Psyhopathologie

Published in final edited form as:
Mov Disord. 2011 August 15; 26(10): 1844–1850. doi:10.1002/mds.23830.

Psychopathology and Psychogenic Movement Disorders

Sarah Kranick, MD[1], **Vindhya Ekanayake, BA**[2], **Valeria Martinez, MS**[1], **Rezvan Ameli, PhD**[3], **Mark Hallett, MD**[1], and **Valerie Voon, MD, PhD**[1,4,*]

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Abstract

Psychogenic movement disorder is defined as abnormal movements unrelated to a medical cause and presumed related to underlying psychological factors. Although psychological factors are of both clinical and pathophysiological relevance, very few studies to date have systematically assessed their role in psychogenic movement disorder. We sought to assess the role of previous life stress using validated quantitative measures in patients with psychogenic movement disorder compared with age- and sex-matched healthy volunteers as well as a convenience sample of patients with focal hand dystonia. Sixty-four patients with psychogenic movement disorder (72% female; mean age, 45.2 years [standard deviation, 15.2 years]), 38 healthy volunteers (74% female; mean age, 49 years [standard deviation, 13.7 years]), and 39 patients with focal hand dystonia (37% female; mean age, 48.7 years [standard deviation, 11.7 years]) were evaluated using a standardized psychological interview as well as validated quantitative scales to assess trauma and previous stressors, depression, anxiety, and personality traits. Patients with psychogenic movement disorder reported higher rates of childhood trauma, specifically greater emotional abuse and physical neglect, greater fear associated with traumatic events, and a greater number of traumatic episodes compared with healthy volunteers and patients with focal hand dystonia controlled for depressive symptoms and sex (Bonferroni corrected $P < .005$). There were no differences in categorical psychiatric diagnoses or scores on childhood physical or sexual abuse subscales, personality traits, or the dissociative experience scale. Our findings highlight a biopsychosocial approach toward the pathophysiology of psychogenic movement disorder, although the association with psychological issues is much less prominent than expected compared with the nonepileptic seizure population. A careful psychological assessment is indicated to optimize therapeutic modalities.

8. Neure Pathophysiologie und Psyhopathologie

REVIEW

Psychogenic Movement Disorders: Past Developments, Current Status, and Future Directions

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ABSTRACT: As the field of movement disorders has developed and matured over the past 25 years, psychogenic movement disorders have become increasingly recognized in subspecialty clinics. The diagnosis can be challenging and should be based on positive features rather than a purely exclusionary approach. The clinical phenotype can be quite varied, although certain categories of abnormal movement are more common than others. Electrophysiological studies may be particularly useful in establishing the diagnosis, especially with respect to tremor and myoclonus, and an argument can be made for adding a "laboratory-supported definite" category to earlier classification schemes. The diagnosis of psychogenic dystonia remains a major challenge, although there are some recent promising developments with respect to the evaluation of cortical plasticity that require further study. The pathogenesis of psychogenic movement disorders is poorly understood; insights may be provided from the study of other neurological conversion disorders such as psychogenic hemiparesis. Psychogenic movement disorders typically result in considerable disability and negatively impact quality of life to the same or greater extent than do many organic movement disorders. Treatment is extremely challenging, and many patients experience chronic disability despite various therapeutic interventions. Given the personal and societal impact of these problems, further advances in our understanding of their pathogenesis and the subsequent development of effective therapies are sorely needed. © 2011 *Movement* Disorder Society

Key Words: psychogenic movement disorders; conversion disorders; imaging; electrophysiology; complex regional pain syndrome

8. Neure Pathophysiologie und Psyhopathologie

RESEARCH ARTICLE

Impaired sense of agency in functional movement disorders: An fMRI study

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Abstract

The sense of agency (SA) is an established framework that refers to our ability to exert and perceive control over our own actions. Having an intact SA provides the basis for the human perception of voluntariness, while impairments in SA are hypothesized to lead to the perception of movements being involuntary that may be seen many neurological or psychiatric disorders. Individuals with functional movement disorders (FMD) experience a lack of control over their movements, yet these movements appear voluntary by physiology. We used fMRI to explore whether alterations in SA in an FMD population could explain why these patients feel their movements are involuntary. We compared the FMD group to a control group that was previously collected using an ecologically valid, virtual-reality movement paradigm that could modulate SA. We found selective dysfunction of the SA neural network, whereby the dorsolateral prefrontal cortex and pre-supplementary motor area on the right did not respond differentially to the loss of movement control. These findings provide some of the strongest evidence to date for a physiological basis underlying these disabling disorders.

8. Neure Pathophysiologie und Psychopathologie

Table 1. Group demographics. Summary of age and gender of the FMD and HV groups.

	FMD Group	HV Group
Sample size (n)	21	20
Age ± SD	48.0 ± 11.0	23.6 ± 3.7
Gender (M:F)	9:12	10:10

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Table 2. FMD group clinical characteristics. Gray areas represent findings on neurological examination that are consistent with FMD.

ID	Age	Symptom	Symptomatic Side/ Region	Non-stereotyped	Distractable	Motor Entrainment	Depression	Anxiety	Abuse History	Other Diagnoses
P01	26	Tremor	Right hand	+	+	+				
P02	36	Myoclonus	Bilateral arms>body				+	+	+	
P03	63	Myoclonus	Right>Left legs	+	+	+	+	+		
P04	50	Ataxia	Bilateral (gait)				+	+	+	Bipolar II
P05	48	Tremor	Bilateral (arms/legs)	+	+		+			Fibromyalgia, Irritable Bowel Syndrome
P06	60	Tremor	Bilateral hands		+	+	+	+		
P07	64	Parkinsonism	Right hand			+	+	+		ADD
P08	45	Ataxia/ Myoclonus	Whole body	+	+		+			
P09	57	Tremor	Bilateral hands, head	+	+	+	+			Fibromyalgia, Chronic Fatigue Syndrome
P10	44	Tremor/ Myoclonus	Whole body	+	+	+		+		
P11	49	Myoclonus	Right>Left body	+	+		+			
P12	34	Dystonia	Left>Right body	+			+	+	+	Panic disorder, Eating Disorder, Bipolar II
P13	51	Tremor	Bilateral hands	+	+	+	+		+	PTSD, OCD, Bipolar, Codependent Personality Disorder
P14	50	Myoclonus	Right>Left body	+	+	+				
P15	29	Tremor	Bilateral arms	+	+	+				
P16	45	Tremor	Right>Left hand	+	+	+	+	+		
P17	57	Tremor	Right>Left body		+	+	+			
P18	49	Tremor	Right>Left limbs	+	+	+	+			
P19	49	Myoclonus	Left arm/leg		+	+	+			PTSD
P20	38	Tremor	Right arm	+	+	+		+		Fibromyalgia
P21	65	Myoclonus	Whole body	+			+	+		Fibromyalgia

8. Neure Pathophysiologie und Psychopathologie

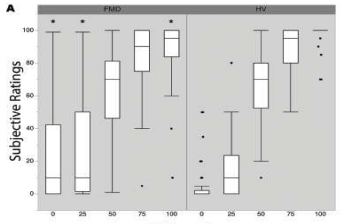

Fig 1. Behavioral data contrasting subjective SA with objective control among FMD subjects and controls. A) Box plots represent median subjective ratings (central line), upper/lower quartiles (box), min/max (whiskers), and outliers (points) for each group and control condition. B) Shows mean/standard error of group subjective ratings along with tendencies to over (positive) or underestimate (negative) control. Asterisks (*) represent significant differences ($p < 0.05$) between FMD and HV group responses.

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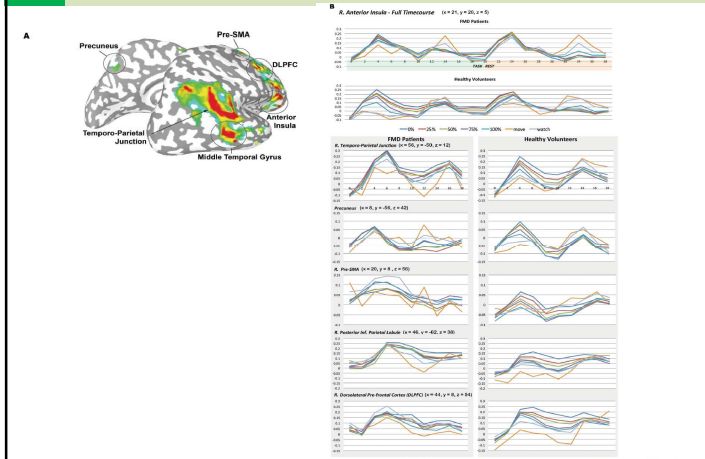

Fig 2. Comparison of fMRI responses to the modulation of self-agency in FMD group and controls. A) Linear trend map of regions responding proportionally to the loss of SA displayed on an inflated standard brain

8. Neure Pathophysiologie und Psychopathologie

Neurology® Clinical Practice

Review

Functional movement disorders

Five new things

Tamara Pringsheim, MD; Mark Edwards, MD

Abstract

Purpose of review: Functional movement disorders (FMD) are commonly seen in neurologic practice, but are associated with poor outcomes. Recent years have seen a resurgence of interest in this area, with new developments in pathophysiologic understanding and therapeutic management. **Recent findings:** Individuals with FMD are a psychologically heterogeneous group, with many individuals having no detectable psychopathology on symptom screening measures, and possibly significant etiologically relevant life events only revealed through in-depth interviews. A randomized trial of specialist intensive physical rehabilitation compared to community-based neurophysiotherapy in FMD has demonstrated moderate to large effect sizes for both physical and social functioning outcomes. Experimental evidence suggests an impairment in the neural systems conferring a sense of agency over movement in individuals with FMD, and may explain why movements that appear voluntary are not experienced as such. **Summary:** The prognosis of individuals with FMD may be improved with greater access to appropriately organized care and treatment.

Neurol Clin Pract 2017;7:141-147

8. Neure Pathophysiologie und Psychopathologie

Functional movement disorders: Five new things

- *Preferential use of the term functional movement disorders is proposed as being freer from etiologic assumptions and recognizes that the cause of symptoms may not be evident.*
- *Patients with functional movement disorders have heterogeneous psychological backgrounds.*
- *Specific physical rehabilitation techniques can be helpful in improving physical and social function in individuals with functional movement disorders.*
- *Experimental evidence suggests that individuals with functional movement disorders do not attenuate the sensory consequences of their actions, and that this may reflect their lack of sense of agency for their actions.*
- *Functional MRI during recall of life events judged to be of causal significance in individuals with conversion disorder reveals increased activity in the left dorsolateral prefrontal cortex, with decreased hippocampal and parahippocampal activity, a pattern compatible with memory suppression.*

9. Zusammenfassung

- Psychogene Bewegungsstörungen: immer noch relativ schlecht untersucht
- Wenig diagnostische und therapeutische Evidenz
- Fehlen von pharmakologisch unterstützen Studien und Langzeitstudien
- Bleibt neurologisches Krankheitsbild mit psychologisch-psychiatrischer Unterstützung
- ''Rather a Software than a Hardware Problem''

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