Functional or psychogenic movement disorders (FMD) represent a common diagnostic problem in routine neurologic practice. Estimates vary, but most published data suggest that 10%–15% of patients presenting with involuntary movements, such as tremor, myoclonus, or tic, have no evidence for an organic brain disorder. However, the exact incidence of FMD remains unknown, given the many challenges in diagnosis including the lack of a gold standard confirmatory test. Moreover, the division between organic and nonorganic etiology has been challenged and functional imaging studies in patients with obvious FMD have suggested abnormal metabolic activity in the sensorimotor cortices, cerebellum, and limbic regions, implying an organic origin of these clinical abnormalities. Likewise, advanced neuroimaging studies revealed analogous abnormalities of the sensory-motor network and its connections in patients with psychogenic nonepileptic seizures, providing a unifying pathomechanism that may underlie both these conditions.

New insights into the pathogenesis of these disorders have led to a modified approach to the diagnosis of FMD. During the last decade, we have seen a substantial shift, from the traditional view requiring exclusion of all organic causes and identification of an associated psychological trauma as a triggering factor, to a strategy with more emphasis on positive clinical characteristics directly supporting the nonorganic cause of the movement phenotype. In addition, clinical evaluation can be strongly supported by additional laboratory evidence, including electrophysiologic and possibly functional neuroimaging features typical for FMD.

Diagnosis of FMD in both the general neurology clinic and specialized movement disorders centers heavily relies on the fact that the abnormal movements can be altered by distraction, demonstrate a placebo response, and are clinically incongruent with movement disorders known to be caused by well-defined neurologic diseases. Previously, Dr. Tijssen’s group analyzed the interrater agreement in diagnosis of hyperkinetic movement disorders. They assembled an impressive panel consisting of prominent neurologists specializing in movement disorders who reviewed video, clinical history, and auxiliary evaluations, including psychiatric evaluation of patients with hyperkinetic movement disorders. These experts reached complete agreement for FMD in only one-fifth of patients and more than 75% agreement in 72% of presented patients. Thus, only a moderate degree of consensus was reached in this panel of experts, despite having comprehensive clinical data available.

The same group expanded on their previous work, and in this issue of Neurology® van der Salm et al. analyze the diagnostic process in establishing the diagnosis of hyperkinetic movement disorders and the diagnostic steps that led to switching from the previously reached conclusions. They also used the same approach with a panel of experts and the order of presented information from the first impression video, medical history, neurologic examination, and electrophysiologic and psychiatric evaluations. The initial video, history, and physical examination were sufficient for a final diagnosis of the hyperkinetic movement disorder in 91.5% of cases (18.5%, 33.3%, and 39.7%, respectively). Switches were rare and only 14.6% of possible switch options occurred in the diagnostic process. The most common reason for a switch was medical history that led to a different diagnosis in 34.5% of all changes, followed by the addition of neurologic examination, which accounted for 13.8% of all switches.

Currently proposed diagnostic criteria for FMD can be classified based on level of certainty and clinically established FMD is based on incongruence with a classical movement disorder or inconsistencies in the examination, plus at least one of the following: other psychogenic signs, multiple somatizations, or an obvious psychiatric disturbance. Proposed revision suggested the category laboratory-supported definite FMD, reflecting a growing emphasis on additional objective findings supporting the diagnosis of FMD. The
readiness potential (Bereitschaftspotential) is the premovement EEG potential before a jerk and it precedes normal voluntary movements or psychogenic abnormal movements. Additional EMG-based electrophysiologic data useful in FMD diagnosis include a tonic discharge of antagonist muscles approximately 300 ms before the onset of tremor bursts; an increase of tremor amplitudes in response to weighting the limb; and entrainment, increase in variability, and change of tremor frequency while tapping with the contralateral hand (entrainment).6

van der Salm et al.8 included the readiness potential in their decision-making hierarchy of tests for FMD. This would be consistent with the laboratory-supported definite category. However, the panel of experts found Bereitschaftspotential important for the diagnosis in only 8% of all cases and led to switches in 7.2% of cases. The weight of psychiatric interview was also minimal for either the diagnosis or the switch.

Analysis of FMD clinical data remains limited due to lack of a definite independent way to confirm the diagnosis. This also hinders any scrutiny of sensitivity or specificity of proposed clinical or laboratory tests. An accurate objective diagnostic test for FMD continues to be a major unmet need for a common group of neurologic disorders that typically have both a very high health care cost and a substantial psychological and social burden for patients.1 However, the diagnosis of FMD remains in the eye of the beholder, and history and physical examination are the gold standard for diagnosis.

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