Advances in early detection of Parkinson’s disease, greater attention to neuropsychiatric symptoms

Experts at the Joint Congress of European Neurology in Istanbul discussed new methods for the early detection of Parkinson’s disease such as such as olfactory testing or transcranial ultrasound. The experts also emphasised the significance of non-motor symptoms, particularly neuropsychiatric comorbidities such as depression, sleep disorders or gambling addiction, which put a massive burden on the individuals affected.

Istanbul, 1 June 2014 – “Despite 20 years of intensive research, we have still not reached our goal of being able to identify potential candidates for Parkinson’s disease (PD) as early as possible before the disease breaks out. We must put more emphasis on early diagnosis and take new approaches in this area,” explained Prof Werner Poewe from Innsbruck Medical University, Austria, at the Joint Congress of European Neurology in Istanbul. “When PD patients start to manifest the typical initial motor symptoms of their disease such as tremor or rigidity, one can assume with high probability that the underlying pathological processes began completely unnoticed years before and have caused a great deal of damage. The research-based evidence for this assumption is mounting.” Disease-modifying or neuroprotective interventions at an early stage might offer greater potential for slowing down the progression of the disease than interventions in later stages.

Ultrasound, biomarkers and olfactory tests as means of early detection

According to Prof Poewe, a growing number of innovative procedures for improved early detection are currently emerging. For instance, genome-wide association studies have identified several PD risk alleles. Imaging may be another tool to identify at-risk populations for PD in the future. Prof Poewe explained: “Preclinical abnormalities can be rendered visible in functional dopaminergic imaging using the dopamine transporter SPECT.”

In a recent population-based, prospective study, the predisposition for developing PD was determined by subjecting the midbrain to an ultrasound examination. The risk is considerably higher when hyperechogenicity is detected. Progress has also been made with biomarkers. Prof Poewe: “Potential proteomic markers for PD risk are currently under investigation. There is emerging evidence that a certain combination of biomarkers may be able to define at-risk populations for PD, who could be entered into future neuroprotective treatments.”

Early detection can also be improved by means of simpler methods, as was shown by an international study presented at the Congress in Istanbul. In the study, 35 patients with REM sleep behaviour disorder underwent olfactory testing. Olfactory impairment turned out to be a predictor of Parkinson’s disease.

Nearly one out of every two PD patients suffer from depression

Prof Heinz Reichmann from the University Hospital Carl Gustav Carus, Dresden, Germany, at the Joint Congress of European Neurology: “The high incidence of depression shows yet again that diagnosis and treatment must not be allowed to focus solely on the classical motor signs of Parkinson’s’ disease.” Symptoms such as REM sleep behaviour disorders, loss of the sense of smell, depression or constipation
might not just indicate an early phase of PD but often persist as comorbid disorders later on. Prof Reichmann: “Too little attention is paid to this aspect even though it is highly detrimental to the patients’ quality of life.” Here are just a few examples: Up to 90 per cent of all PD patients suffer from a loss of olfaction. That is because the disease initially attacks the olfactory lobe in the brain, inter alia. Nocturnal sleep disturbance occurs in 60 to 98 per cent of PD patients and is often severe. With REM sleep behaviour disorder (RBD), patients lose normal skeletal muscle atonia during REM sleep and are thus able to enact their dreams physically, which can be extremely unpleasant.

Neuropsychiatric problems such as anxiety, dementia and gambling addiction are also common comorbidities. Depression affects at least 40 to 50 per cent of PD patients and in 30 per cent of all patients with PD it precedes the motor symptoms. Prof Reichmann: “Depression in PD is predominantly caused by the degeneration of systems that release monoaminergic neurotransmitters and by fronto-cortical dysfunction. Neuropathological findings show a loss of neurons in the nc. coeruleus and also a loss of neurons in the nc. Raphe in some patients. This phenomenon highlights that depression is definitely not only a result of reactive behaviour.” In addition, depression in PD patients differs from other types. In one out of three patients, it manifests itself before the motor symptoms of PD, e.g. through loss of initiative and low self-esteem or other early symptoms.

Later on, panic and anxiety attacks frequently occur. The mood-swings correlate only slightly with the severity of motor impairment. Prof Reichmann: “Patients should definitely be given appropriate support. Psychosocial services, psychotherapy, behavioural therapy or drugs have proven effective in this context.” Common later non-motor symptoms include urinary incontinence, sexual dysfunction, profuse sweating, fatigue, apathy or psychosis. “It is high time for new integrated treatment options that provide better and faster help to PD patients,” Prof Reichmann said.

Sources:
Congress Abstracts Poewe, Early diagnosis and biomarkers in PD; Mahlknecht et al., Olfactory assessment for predicting transition to neurodegenerative parkinsonian disorders in subjects with idiopathic rapid-eye-movement sleep behaviour disorder: a prospective cohort study; Reichmann, Movement disorders moving beyond the motor phenotype.

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