G2019S penetration resulted much higher (85% at 70 years), but it was carried out in cases selected by strong familiarity. The present study might provide more reliable estimates, being based on an unselected series.

**P956**

Transcranial sonography of substantia nigra and MIBG myocardial scintigraphy in patients with early Parkinson’s disease

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Objective: The purpose of this study is to evaluate SN echogenicity in outpatients who came to our hospital and were clinically diagnosed as having early PD.

Background: In patients with Parkinson’s disease (PD), a hyperechogenicity of the substantia nigra (SN) can be demonstrated by transcranial sonography (TCS). The clinical significance of TCS has not yet been determined in Japanese PD patients.

Methods: The subjects were nineteen patients who were clinically diagnosed as having possible PD at the initial visit. TCS was performed to assess the degree of SN hyperechogenicity. Metaiodobenzylguanidine (MIBG) myocardial scintigraphy, a marker of Lewy body disease, was also performed. The obtained findings were assessed with disease stage according to the Hoehn-Yahr scale, and the unified Parkinson’s disease rating scale (UPDRS).

Results: We could not detect the midbrain by TCS in ten patients (53%). In all the nine patients in whom the midbrain was clearly detected, SN hyperechogenicity was definitely observed. In seven of them, the area of SN hyperechogenicity was larger in the SN contralateral to the parkinsonism-predominant side. In eight of the nine patients who showed SN hyperechogenicity, myocardial MIBG uptake was reduced. There was no correlation between the heart/mediastinum (H/M) ratio and the area of SN hyperechogenicity.

Conclusions: The present findings may support the hypothesis that SN hyperechogenicity is a possible tool for making diagnosis of PD. Because in early PD patients, a reduction of myocardial MIBG uptake is not always observed, the combination of TCS and MIBG myocardial scintigraphy may contribute to increasing the specificity of an early diagnosis of PD. On the other hand, the high rate of recording failure of SN by TCS in Japanese patients may limit the clinical usefulness of TCS.

**P957**

Behavioral and psychiatric manifestations following deep brain stimulation of the subthalamic nucleus in Parkinson’s disease: Are they really rare?

O. Porat, S. Hassin-Baer, R. Schwartz, O. S. Cohen (Tel Hashomer, Israel)

Objective: To evaluate the diversity and severity of behavioral and psychiatric symptoms evolving in patients with Parkinson’s disease (PD) following deep brain stimulation of the subthalamic nucleus (STN-DBS), in relation to preexisting manifestations.

Background: While early data supported the relative safety of STN-DBS in PD, recent reports of behavioral sequelae call for a re-evaluation of the scope of these symptoms.

Methods: All PD patients after STN-DBS were evaluated for their present and retrospectively for the preoperative symptoms. The patients were rated using the neurobehavioral rating scale (NRS) and the Beck neuropsychiatric (NPI) scale. The NRS evaluates symptoms in PD, recent reportsofbehavioralsequelaecallforare-evaluationoftheinrelationtopreexistingmanifestations.

Results: Twenty-five patients (17 males, age: 60.7±10.2 years) were compared to age and gender-matched healthy controls (n=11). Subjects wore force-sensitive insoles that measured the timing of each gait cycle during comfortable walking and during walking with simultaneous mental loading (serial 7 subtractions). Bilateral coordination of gait was evaluated by quantifying the phase relationship between left and right heel-strikes with respect to the stride duration. For each subject, the sum of the coefficient of variation of the phase and the mean absolute difference between the phase and 180° was defined as the phasing coordination index (PCI) representing variability and accuracy, respectively, in phase generation. Higher PCI values reflect less coordinated phase generation. Synchronization between the two legs was characterized by phase synchronization analysis (Poincare method). For each subject, the synchronization index p was calculated (p=1 and p=0 correspond to maximal- and to no-synchronization, respectively).

Results: See table.

Conclusions: Left-right stepping is less synchronized among PD patients in comparison to elderly subjects. Impaired synchronization became more aggravated when PD subjects performed a secondary mental task. Perhaps this reduced coordination, especially when mentally challenged, contributed to the increased fall risk common to patients with PD.

**TABLE 1 (P958). Effect of mental loading on coordination and synchronization of gait**

<table>
<thead>
<tr>
<th>PCI and p (near 5%) with and without mental loading, Entries in arbitrary units</th>
<th>PD</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>PCI</td>
<td>p</td>
</tr>
<tr>
<td>Usual Walking</td>
<td>7.4 ± 1.0*</td>
<td>0.54 ± 0.02</td>
</tr>
<tr>
<td>Dual task</td>
<td>11.0 ± 1.4*</td>
<td>0.49 ± 0.02*</td>
</tr>
<tr>
<td>P value</td>
<td>0.0002</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

*Difference between PD and Controls: p<0.05

**P959**

High frequency stimulation of the subthalamic nucleus differently affects D1 and D2 dopaminergic receptor densities within basal ganglia nuclei in intact and hemiparkinsonian rats

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High frequency stimulation (HFS) of the subthalamic nucleus (STN) is an effective treatment for advanced Parkinson’s disease (PD) but the...