

cessity of special software to calculate the cartesian coordinates. Are described its development and technic of use, and reported the author's experience with its use, specially in the treatment of movement disorders and to make intracranial biopsies, performed at *Instituto de Neurologia Deolindo Couto, Universidade Federal do Rio de Janeiro*, since 1997.

The author developed a simple and practical apparatus, achieving a system that permits the direct measurement of X, Y and Z cartesian coordinates on the proper monitor of computed tomography. The stereotactic apparatus is composed by a head ring, that is fixed to skull with three or four stainless steel screws, a rulers system that permits movements of the arc to front or back, to up or down, to inside or outside, and moreover two types of free angulation: of the cilinder and of the needle in the arc. The patient performs the brain computed tomographic scan with the head ring fixed with the screws, which extremities touch the external bone skull board and do not permit any movement. At the side of the ring, are placed localizing plaques, in the right

and left, that permit the direct correlation between the tomographic scan target to the tridimensional coordinates, related to the ring. So, the zero point (X0, Y0, Z0) is the center of the ring circumference, at its superior surface. The movements are performed with the linear sliding, millimetred in the three cartesian axis (X, Y, Z), and there is no neccessity to the calculation of any angle. With the coordinates calculated and in the operation room, the apparatus is set, fixed to the ring. The rulers movements are performed in the three axis, permitting that the needle point touch the target point pre-fixed.

The free angulations permit movements to choice the best way to touch the target. The developed apparatus presents precision comparable to the target centered arcs apparatus in use nowadays (2 mm). It presents technology entirely national, easy handling, and its development has been diffusing in technical-cientific enviroinment, specially through the reports of author's experience with its use.

**KEY WORDS:** stereotactic neurosurgery, intracranial biopsy, functional neurosurgery.

\*Desenvolvimento de aparelho arco alvo-centrado para procedimentos estereotáticos neurocirúrgicos (Resumo). Tese de Doutorado, Universidade Federal do Rio de Janeiro, (Área: Engenharia de Produção). Orientadores: Carlos Alberto Nunes Cosenza e Ricardo Wagner.

\*\*Address: Rua Djalma Ulrich 201 / 1201, 22071-020 Rio de Janeiro RJ, Brasil. E-mail andrauscm@aol.com

## DEPRESSION IN PARKINSON'S DISEASE: STUDY OF 60 CASES (ABSTRACT)\*. THESIS. SÃO PAULO 2001.

ROBERTO CÉSAR PEREIRA DO PRADO\*\*

Neuropsychiatric disorders, specially depression, are frequent in Parkinson's disease (PD), however these symptoms are often underrecognized by neurologists. The objectives of this study were: 1) to emphasize the need of a better approach to neuropsychiatric symptoms in PD by the neurologists, in order to ensure an early diagnosis and proper treatment of depression. 2) to evaluate the clinical characteristics and the frequency of depression in PD. 3) to study the correlations of depression in PD with other variables, discussing the neurophysiological mechanisms of depression in PD.

Sixty patients who fulfilled the clinical criteria for PD (primary), 56.6% male, non demented, ages ranging from 44 to 85 years old, in different stages of the disease (Hoehn & Yahr modified), were submitted to the UPDRS-III, V and VI, Clinical Interview Schedule – revised edition (CIS-R), a semi-structured interview in order to detect neuropsychiatric symptoms and the Hamilton depres-

sion scale (HAM-D), applied by the examiner/author.

The most prevalent psychiatric symptoms were sleep disorder (40%), depression + depressive ideas (38.33%), worry (30%), anxiety (25%), obsessions (23.33%), concentration (18.33%), irritability (11.66%), panic (8.33%), compulsions (5%), phobias (5%). There was not significant correlation between depression and: sex, age of onset, current age and cognitive function. A significant correlation was found between depression and UPDRS-III, V and VI. A significant correlation was also found between depression, anxiety and irritability.

The frequency of depression in PD in this study was around 40% and had its own characteristics. The utilization of structured interviews and evaluation scales is essential for an accurate diagnosis and proper treatment of depression in PD.

**KEY WORDS:** Parkinson's disease, depression.

\*Depressão na doença de Parkinson: estudo de 60 casos (Resumo). Tese de Doutorado, Universidade de São Paulo (Área: Neurologia). Orientador: Egberto Reis Barbosa.

\*\*Address: Rua Celso Oliva 321 / 301, 49020-090 Aracaju SE, Brasil.