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Short Communication
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Challenges of Cognitive Neuroscience in Vulnerable Populations

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Short Communication

Working with populations of older adults in conditions of socioeconomic vulnerability requires a series of adaptations of diagnostic resources, which implies a challenge to the capacity of health systems responsible for providing quality care to patients. Low socioeconomic level status results in less access to medical care. In order to promote a comprehensive care model that improve the quality of life to this community, a neuroscience program of promotion for active and healthy aging was proposed in 2015, through a Memory Clinic opened in the outpatient department of *Neurosciences and Complex Systems Unit (ENyS), in* "El Cruce Hospital", in the Province of Buenos Aires, Argentina. The clinics cover the demand for interconsultation of a population of more than 13.000 retirees and pensioners. Patients with cognitive complaints are received and a diagnostic algorithm is established that includes, in addition to the neurological and cognitive evaluation the study of the demographic, social and cultural characteristic of each patient.

We analyzed 366 patients older than or equal to 60 years, 78% women. The average age in women was of 70.6 years (SD 7, 5), and in men was of 71.5 (SD 6, 6). In relation to school education, 29.5% have up to 3 years of schooling, 14% up to 5 years, 39.7% have completed primary school (up to 6 years or 7 years of schooling), 15.13% have full secondary and only 1.1% study at the university. In relation to its residential location, 80% patients live with nuclear or extended family, and 20% patients live alone at home, no patients were institutionalized.

The findings of cognitive assessment showed that:

1. The results of the patients evaluated with MMSE, cut-off point according to age and schooling was 49.1% below normal.

2. The results of the evaluated patients with ACE-R, the cut point for schooling has showed that 45.27% is below normal.

In relation to the functional autonomy of patients, evaluated with CDR, in patients who score for dementia according to the MMSE, 70% of this population was independent (autonomous) and 30% had dependence on functionality. While patients evaluated with ACE-R who scored below the cut-off point for dementia, 93.5% had functional independence and 6.5% were functional dependent. Regarding MRI, in patients with MMSE or ACE-R compatible with dementia, 91.5%/93.3% respectively showed abnormal MRI, 16.8% patients had degenerative pathology (cortical atrophy and mixed) exclusively, 31.2% showed only vascular disease (ischemic gliosis and leukoaraiosis) and 5.4% mixed pathology. For patients with cognitive normal evaluation 85% of patients had abnormal findings in MRI, 57.9% cortical atrophy, 26% ischemic gliosis, and 8.4% leukoaraiosis.

In relation to the pharmacological treatment received by the patients admitted to MC, we analyze here the one indicated in neurological pathologies and divide the population according to the result of the cognitive evaluations. In the subjects who had results compatible with dementia, regardless of the degree of functionality, 64% of them did not receive any drug, 17.8% was medicated with anticholinesterases agents, 4% with memantine, and 6.9% with vasodilators. In the group of patients with normal cognitive evaluation, 67% did not receive any drug, 15% with anticholinesterase agents, 2.1% with memantine, and 8.6% with vasodilators.

Conclusion

In this study we have analyzed the patients who were referred to MC by the General Practitioner (GP), due to a cognitive complaint of the patient or his family. In the first interview, we observed that it includes a wide range of symptoms from memory failures, unusual behaviors, depression or anxiety, apathy, signs of minimal and moderate cognitive impairment and dementia. None of the

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patients who came to the consultation with some of these symptoms mentioned, had been evaluated with neuropsychological tests. Mostly female patients were enrolled in our study. Predominantly patients had minimal education schooling. Eighty percent of population lives with nuclear or extended family, and 20% live alone at home, no patient was institutionalized. The majority of the patients presented some abnormality in the cerebral MRI even those who had normal cognitive evaluation. The low definition of most of the studies carried out, prevented the application of volumetric measurement protocols and other parameters. More than half of the patients with probable diagnosis of dementia did not receive any type of pharmacological treatment, while a quarter of the population without dementia was receiving treatment that is used for this condition.

Half of the patients referred to the MC presented a diagnosis consistent with dementia according cognitive evaluation. The diagnosis of dementia remains a challenge, furthermore in our population most patients are illiteracy. The finding that patients with a probably diagnosis of dementia according to international and national standards, though having a certain degree of autonomy, and to perform some of the activities of daily family and community life. It brings the concept of functionality as a variable that should be considered essential to complete the diagnosis. It was a significant finding that most of these patients had functional autonomy. One hypothesis we propose is that no correlation observed between cognitive impairment patients and their level functionality, due to family support received and the level of integration in community life.

Our results allowed us to provide adequate information to the patient and their families, and establish a therapeutic strategy suited to the needs of the patient and his family. The possibility of understanding the arbitrary limit between cognitive impairment and dementia, contributes to the goal of destigmatizing old age as synonymous with illness and disability, improves the quality of life of patients and frees the caregiver from overloading his family, allowing the maximum autonomy and independence. We propose in the near future begin developing education programs for GPs and all health personnel, especially targeting the minimum standard cognitive assessment, and evaluation of functionality as a variable for diagnosing disease. It is essential to educate the professionals who refer to specialists with simple and precise diagnostic criteria. On the other hand, we plan develop cognitive assessment instruments according to the educational level of the patients. Most of the international validated instruments used have been developed in contexts that are markedly different from ours. And continue with the evaluation of cognitive reserve construct specially.