Chapter 16
Neuropsychological Cases in a Low-Income National Referral Hospital

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Abstract Neuropsychological assessment in Low and Middle Income Countries (LMIC) is clearly in its infancy. Often there are no neuropsychologists making it a big area of challenge for neuropsychology in the LMIC, especially in Africa, including Uganda.

This chapter will review cases of adult patients who suffered from cognitive deficits including dementia, that underwent psychometric assessment. However the tests that were done were limited showing a need to do more specific and comprehensive tests in order to ascertain the nature of dementias or other lesions which the different patients had. This calls for advanced training and obtaining the necessary testing tools as a means to advance the field of neuropsychology and assessment in Uganda.

Keywords Neuropsychology • Assessment • Dementia • Low and middle income country • Alcohol • Trauma • HIV/AIDS

Background

Neuropsychology is a discipline entity that is concerned with the way behavior is expressed in brain dysfunction [1]. It is a quantitative assessment of obtaining information regarding behavior and brain functioning. Whereas this discipline has evolved since the first and second World Wars in Europe and the US, it is a recent phenomenon in Africa and it is clearly in its infancy. In Sub-Sahara Africa, South Africa is the leading neuropsychology site but still with only a burgeoning specialty [2]. Elsewhere in the rest of Sub Saharan Africa as in most Low and Middle Income Countries (LMIC), neuropsychology is taught at university in the departments of Psychology but mainly as an elementary introduction course unit for the Masters

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S. Musisi, S. Jacobson (eds.), *Brain Degeneration and Dementia in Sub-Saharan Africa*, DOI 10.1007/978-1-4939-2456-1_16

programs in Psychology. As such not much is done in the way of assessing neuropsychological disorders, and rehabilitation of individuals of these disorders. Considering that Sub Sahara Africa has one of the highest prevalence of infectious diseases including HIV and its related neurological complications, and also that Africa has one of the highest alcohol consumption rates and subsequently high incidences of accidents there is a need to pay attention to this young discipline as a way of furthering management of neuropsychological/neuropsychiatric cases in these low income settings. Although Uganda has a relatively young population with over 50 % of the population comprising of children of 0–15 years, the country still has a population that gets into old age. This subsequently exposes the elderly to geriatric neuropsychological complications requiring assessment and rehabilitation.

Infections may affect behavior and brain functioning and it is well documented that HIV/AIDS will commonly manifest with neurological impairments [3]. Neuropsychological screening and assessment of HIV-infected patients will typically show cognitive deficits in psychomotor speed, attention and frontal lobe function as well as in verbal and non-verbal memory [4]. The following case report illustrates a typical patient with HIV neurological complications in the Ugandan setting.

HIV/AIDS Associated Dementia JB was a 74 year old male retired civil servant with an education level of 16 years. He was referred by a psychiatrist to a psychologist for psychometric assessment because of progressive forgetfulness and a change in his behavior. His wife reported that prior to the change in behavior, the patient was known to be financially responsible and would not carelessly spend his money. Collateral history showed that the patient was sexually and financially disinhibited at the time of referral. With changes in his behavior, the patient gradually became more and more extravagant and was progressively unable to account of how he was spending money. This caused a financial loss to the family and alarmed his wife. The patient was also easily suggestible and he would readily agree to other people's suggestions regarding his estate. This caused intense distress to the family because they feared that they would lose their property if he sold it. They wanted something to be done. JB had no previous psychiatric history and he did not abuse alcohol or drugs. Whereas he was previously a well kempt elderly man, he had stopped taking care of himself and would spend many days without bathing. He, however, readily took a shower whenever it was pointed out that he had not had a shower in a long time. He would also readily change into fresh clothes if this was also pointed out to him.

On cognitive testing, the patient was well oriented in time and place. He however did not perform as was expected for an individual with his academic background on attention and concentration. His performance on memory-recall was poor (0/5) and his recognition was average (5/7). His anterograde and retrograde memory were average (5/7 and 4/4) respectively. Verbally, the client performed averagely (4/7 and 4/7) respectively. He could comprehend instructions and his writing was still clear. When told to repeat words (immediate recall), the client was good at this task. He was also good at the naming and reading tasks. Long term memory was impaired. His visuo-spatial tasks were poorly done. However his perceptual abilities were

intact. The cognitive assessment coupled with the collateral history was suggestive of dementia. A recommended HIV serological test turned out positive but Syphilis serology was negative. As to whether this man also had an age-related dementia, such as Alzheimer's Dementia remains an unanswered question. This is a common dilemma in LMIC in this age group.

Intoxications are another common cause of brain damage calling for neuropsychological assessment. Chronic consumption of alcohol is often indicated in cognitive impairment in LMIC [5]. The following is an illustrative case of a patient that had been abusing alcohol and was referred to be cognitively assessed. It often occurs in middle aged males, younger than the age-related dementias.

Case A: Alcoholic Dementia PM was a 54 year old highly educated individual who was a Chief Executive Officer (CEO) of an international company. Collateral history from his wife indicated that he was progressively becoming forgetful. He could however still drive himself to his workplace. He had developed anxiety probably because he had realized that he was losing his memory and would often forget important things including job-related appointments. He was signing important documents without proper scrutiny of what was in the documents and his colleagues were concerned that this could lead to financial loss to the company if he continued working in his capacity as CEO. It is this pressure at work that was the reason for the referral for psychological assessment.

PM had overt memory loss as was evidenced by his lack of recognition of a son whom he had not seen in a year. His Activities of Daily Living, ADLs, were very compromised. He had challenges with dressing himself. He also had challenges with finding his way around the house that he had stayed in all his married life. He had challenges describing what he had had for breakfast that day. He had difficulties with both his long and short memories. He also had challenges with abstract reasoning and he commonly resorted to confabulating. His scores on the Wechsler Adult Intelligence Scale (WAIS) subtests were lower than expected for an individual of his level of education, socioeconomic status and age. On behavior observation, it was noted that he was not able to walk unaided and supported because he had developed an imbalance. His HIV and Syphilis serological status were negative and apart from his abusing alcohol there were no other reported explanations for his rapid progressive memory loss. It was not possible to do expensive investigations such as MRI and brain CT scan as he could not afford them and he had no health insurance. This would have complemented our findings. Such is a common scenario in LMIC, such as Uganda.

Case B SM was a 46 year old male who had been educated in the USA and was a lawyer. He was currently unemployed. He was referred because he was progressively becoming forgetful of where he would place his money and as such would complain that other people were taking his money. The client had no known physical illnesses and he appeared healthy. Although he denied that he was a regular alcohol user, his sister reported that while growing up, he (the client) always had a beer can! He had started abusing alcohol from a very early age in secondary school. On interviewing the client, he had challenges recalling where he had attended grad-

uate school. Whereas the patient performed well on the cognitive domains of fluency, and averagely on attention and orientation, language and visiospartial, he performed poorly on memory. The cognitive assessment was indicated that he had challenges with thinking and recall. He would confabulate responses when asked a question to which he could not recall the answer.

Age-Related Dementias With Behavioral and Psychological Symptoms of Dementis, BPSD These cases usually present in the elderly and often require neuropsychological assessment in the geriatric population. The following two cases are illustrative:

Case I BM was a 76 year old male with 11 years of formal education. He was married and was brought in by his daughter. He was referred for a psychological assessment because of impairment in his activities of daily living and wild accusations that he could hear strangers who came to his house in the night to make love to his 72 year old wife. The client had no known physical illness. He did not take alcohol or drugs. He had never had any previous psychiatric illness. He however realized that he had memory problems and whenever he was asked a question, he would ask his daughter to respond on his behalf. He was using his daughter as the device to help him fill in his memory gaps. On cognitive assessment, the client refused to make any attempts on drawing. The Addenbrooke's Cognitive Examination showed that he had challenges in areas of attention and orientation, language, visuospatial, fluency and memory. These were severe enough to impair the client's daily functioning. He also had fixed paranoid delusions and auditory hallucinations, accusing his wife of 50 years to be having affairs. Indeed he wanted to ask for a divorce to the chagrin of his already grown up children. Sometimes he would wake up in the middle of the night to go and beat off the strangers he complained of. He had dementia associated with the "Behavioral and Psychological Symptoms of Dementia, BPSD". We were not able to ascertain the nature of the dementia as he could not afford expensive investigations.

Case II YK was a 76 year old male who presented to the national referral hospital for assessment because of family disharmony and attempted suicide coupled with progressive memory loss. The client was well educated and held a post-graduate university degree. He was relatively a successful entrepreneur and administrator. Collateral history showed that there was a history of dementia on his paternal side. The client was hypertensive and he also had a hearing impairment. For several years, the patient would accuse his house help for wanting to poison him. Later he started accusing his wife for wanting to poison him. He began perceiving that everyone around him wanted to harm him and he had become highly suspicious. He would forget where he had placed his medications and would then accuse others of wanting him dead by hiding his medications. He also forgot where he had put (hidden) his money and then accused others of having stolen it. On observation, the client was slow in his movements but he had been very belligerent at the time he had been admitted to hospital and had been sedated. This could have been the reason for his apparent slow movement. He did not abuse alcohol or drugs and his physical

examination and laboratory tests were unremarkable. The brain CT and MRI scans had shown widespread cortical atrophy, more marked in the frontal and temporal lobe areas.

The patient was tested on a number of cognitive domains including executive functioning, attention, language, abstraction, delayed recall, orientation, memory and fluency. Using the Addenbrooke's cognitive examination the patient scored 51 out of a possible score of 100. With a cut off score of 82, this patient presented with dementia of a moderate degree of severity associated with Behavioral and Psychological Symptoms of Dementia, BPSD. A hearing aid was recommended as part of his treatment.In both cases I and II above, anti-dementia treatment had to be combined with family therapy interventions and medications to counteract the BPSD.

Neuropsychological assessment of children is even rarer and in many cases there are no child neuropsychologists. This remains a big area of challenge for neuropsychology in LMIC, especially in Africa, including Uganda.

Conclusion

Neuropsychological assessment in low income settings is clearly in its infancy. Although all the above cases indicate that the patients suffered from cognitive deficits and that they had dementia, there was still need to do more specific and comprehensive tests in regard to ascertain the nature of dementia which the different patients had. This calls for advanced training and obtaining the necessary measures and testing tools as well as equipment to complement the scant measures that are available in these low income settings.

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