

Mild Cognitive Impairment: Confronting challenges in Diagnosing

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Abstract

Increasing population growth, unprecedented rates of urbanization worldwide, growing air and noise pollution provoking different diseases in big cities is becoming the first-rate unsettled problems globally. Recent research shows that long-term exposure to air and noise pollution have detrimental effects on children's thinking cognition and academic performance and behavior. But unfortunately, there is limited scientific evidence and knowledge about possible underline mechanisms for these effects and consequences. Very few studies have been considered the impact of urban air and noise adverse effects on adolescents too.

Kew Words: profiling; neuro-imaging; cognitive linguistic profiling; cognitive reserve; deficit-based approach

Introduction

Cognitive-communication disorders (CCD) are problems with communication, which have an underlying cause in a cognitive deficit rather than a primary language or speech deficit. Ex. Communication issues arose as a consequence of Mild cognitive impairment (MCI), Traumatic Brain Injury (TBI), Dementia, etc. Cognitive decline is a common phenomenon associated with normal ageing and is getting a lot of attention among clinicians. Cognitive communication disorders have devastating effects on family life and social life. Cognitive deficits like difficulty paying attention to the conversation, staying on topic, remembering information, recalling, understanding jokes, and metaphors, Following directions, etc. Cognitive deficits can be seen in isolation or combination, Symptoms vary in severity. The decline in cognitive performance with aging is due to several cognitive processes, including a reduction in the speed of processing, working memory capacity, and loss of sensory input. These disorders can comprise language comprehension, language production, and pragmatic language use. If these problems are not recognized and addressed in time the condition might deteriorate (ex. An MCI condition might develop into dementia) These processes result in deficits in encoding, storing, and retrieving information, but the cognitive capability is unaffected (Williams & Kemper, 2010). These effects are seen while retrieving information from the long term and short term memory storage, where the retrieval of information is slower in the former and amount of information which can be stored is decreased in the latter (Jorm, Christensen, Korten, Henderson, Jacomb, & Mackinnon, 1997). Recently the label 'Mild Cognitive Impairment' (MCI) is being practiced to signify the intermediate condition between dementia and normal ageing (Anand, Chapman, Zientz, & Toussaint, 2005). Cases with the following signs and symptoms are recommended to use this label: (i) informant-corroborated history of memory symptoms, (ii) impairment in memory when measured objectively (usually < 1.5 standard deviations on a verbal memory test), (iii) spared general cognition, (iv) activities of daily living (ADL) well

preserved, and (v) no dementia (Gauthier & Touchon, 2005). Evidence suggests that cognitive decline in MCI has no adverse effect on activities of daily living in comparison to dementia (McKhann et al., 2011) and this is consistent with the definition of "Mild Neurocognitive Decline" (NCD) from DSM-V (Edition, 2013). Cognitive decline was studied in individuals with Alzheimer's disease (AD), Mild cognitive impairment, and normal cognition for eleven years and it was concluded that cognitive capacity in normal declined slower than in MCI group and that of MCI group declined slower than the sub-group of Alzheimer's disease (Ritchie, & Touchon, 2000). All cases with MCI do not progress to dementia, as reported by studies. We present a patient with CCD and discuss the assessment, differential diagnosis, intervention, and the challenges faced in the process.

Aim: To profile the cognitive linguistic deficits in a case diagnosed with MCI

Method:

A 68-year-old, Male, Multilingual (Kannada, English, and Urdu) Client reported with a complaint of dysfluent speech. Hence, SSI-4 (Stuttering severity index) was administered initially in the outpatient department which indicated Mild stuttering and highly natural-sounding speech however, it was observed during testing that stuttering behavior was mainly because of word retrieval difficulty. Western Aphasia Battery (WAB) was done to address this issue, which indicated the presence of Anomic aphasia but cognitive issues in the client was pronounced which was unusual for an Anomic aphasia patient. To address cognitive issues MoCA (Montreal cognitive assessment) a rapid screening instrument for cognitive dysfunction was administered which indicated the presence of Mild cognitive impairment (MCI). Further CLQT (Cognitive linguistic quick test) a diagnostic tool was assessed which confirmed the presence of MCI. A recommendation to a

neurologist was made, who confirmed the same. Further analysis of word retrieval and naming difficulty was done by administering ANT (Action naming test), BNT (Boston naming test), and generative naming (WAB). FDA (Franchay dysarthria assessment) was also done to rule out Dysarthria. As a speech-language pathologist we consider the communication aspects affected in any kind of cognitive related disorders (MCI, TBI, Dementia, etc) and label it as a cognitive communication disorder. Hence, the client was provisionally diagnosed as Cognitive communication disorder. The client attended 11 sessions of speech-language therapy

Result and Discussion

The case report word finding difficulty and the condition was initially misinterpreted and neurogenic stuttering was suspected by the allied professional and SSI-4 was administered and it was clear that there was no evident dysfluency and the dysfluency was attributed to word finding difficulty. Following this, Western Aphasia Battery (WAB) was administered on the client and the findings of the test revealed Anomic Aphasia however the amount of cognitive deficit what the client exhibited did not correspond to Anomic aphasia, in other words the cognitive linguistic deficits did not match with the quantum of cognitive deficits, following this Montreal Cognitive Assessment was administered on the client and the scores on MOCA was reduced suspecting Mild Cognitive Impairment. The cognitive linguistic profiling was carried out using Cognitive Linguistic Quick test, the test revealed that the client exhibited deficits pertaining to attention, memory and reasoning confirming MCI. The basic constraint in this client was that the scanning results was unavailable imposing challenges to diagnosis. The number of deficits exhibited by the client was more than the senescent changes exhibited in normal aging for instance the client exhibited difficulty in following directions, had difficulty in retrieving words in a conversation task. He also exhibited problems on judgment-based tasks showing the possibility of MCI in the client. The client exhibited more f=difficulty in time constrained task and on generative naming task, he exhibited difficulty and need constant prompts to name pictures on

confrontation naming task too. The client started intervention at the time of the conduct of the current study. Deficit based approach was used in the intervention as the cognitive decline/deficit was mild in nature. He reciprocated well to therapy. The outcomes of therapy were not profiled in detail as the number of sessions were less for a detailed profiling and comparing pre and post therapy details.

Conclusion:

Mild Cognitive Impairment is a precursor to Dementia, if the condition is not identified earlier, there is high vulnerability/risk of such client developing dementia. The diagnosis would be difficult if neuro-imaging details are not availability as the client could not afford, neuro imaging was not done in this client. A detailed cognitive linguistic profiling enabled the proper diagnosis and timely intervention facilitated cognitive reserve.

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