CASE REPORT

A Case of Korsakoff Syndrome in a Chinese Female Malaysian

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Abstract

Introduction: Korsakoff Syndrome (KS) is a preventable memory disorder that can occur after Wernicke’s encephalopathy (WE). There is scarce information regarding KS in Malaysia. Method: Case report. Results: A 49 year-old Chinese lady with daily alcohol use in between 15-20 units for more than 10 years became forgetful eight months prior to her admission due to withdrawal symptoms and a fall when she attempted to cut down her alcohol use to 7–8 units. Examination revealed confabulation, dysdiadochokinesia, resting and intentional tremor but not confusion, ophthalmoplegia, nystagmus or ataxia. Mini mental state examination result was 14/30. Investigations revealed features of chronic alcohol use and cerebral atrophy of bilateral frontotemporal lobe. Despite aggressive treatment with intravenous and oral thiamine, the patient’s cognitive deficit persisted. Hence KS was diagnosed. Discussion: There is no proven treatment that can reverse KS other than prevention. Thiamine fortification may be implemented locally to prevent this condition.

Keywords: Korsakoff Syndrome, Thiamine Deficiency, Dementia, Neurocognitive Disorder, Alcohol Dependence

Introduction

Korsakoff Syndrome (KS) is a condition of memory disturbance that can occur after prolonged alcohol use1. Both thiamine deficiency and prolonged alcohol-related neurotoxicity are implicated as etiological factor for KS2.

The prevalence of heavy drinker in Malaysian lady is low, which is only less than 0.1 %3. Chinese population generally has lower rate of alcohol dependence because higher percentage of Chinese population has aldehyde dehydrogenase deficiency due to ALDH2*2 & ADH1B*2 alleles4. Moreover, drinking culture is discouraged among the ladies in Malaysia. Hence it is uncommon for a Malaysian Chinese lady to develop alcohol dependence. There is scarce information regarding the prevalence of KS in Malaysia.
Here, a case of KS in alcohol use disorder Malaysian Chinese lady is reported.

Case

The patient was a 49 year-old Chinese female, who was treated for Major Depressive Disorder for past 10 years after her divorce and currently in full remission. She started to use alcohol drink since 21 year-old due to curiosity and peer pressure. She managed to stop alcohol use transiently during her pregnancies without experiencing withdrawal symptoms. However, her alcohol use gradually increased after her divorce with her husband 13 year ago, until the extent that she drank 15 to 20 units of alcohol for more than 10 years without getting intoxicated. She craved for alcohol and would develop withdrawal symptoms if she did not drink, i.e. tremor, anxiety, and insomnia.

Eight months prior to admission she began to become forgetful and it worsened progressively. She forgot about the order that she had taken from her customer and she misplaced her items regularly. In addition, she had poor attention and difficulty of recognizing people and remembering their names. Hence she was terminated from her job as a waitress.

A week prior to admission she attempted to reduce her alcohol intake to 7–8 units and she started to develop tremors, agitation, insomnia, and Lilliputian hallucination (seeing a doll and a small boy running in her house). On the day of admission she had a fall due to imbalance without losing her consciousness and there was no seizure. She only bruised her left lower eye lid during the fall.

Examination revealed an alert but anxious Chinese lady who was disheveled. Her vital signs were normal with BMI of 19.7. She had dysdiadochokinesia, resting tremor, intentional tremor, and constructional apraxia. Nevertheless she did not have ophthalmoplegia, nystagmus, ataxia, or proximal myopathy and her reflexes were normal. She had Lilliputian hallucination, i.e. seeing a doll and a small boy running around in her house. She was preoccupied with her tremor and anxiety as well as craving for alcohol. Confabulation was noticed whereby the patient gave different set of stories to the doctor at different time that was proven to be wrong by corroborative history from her daughter. Mini mental state examination of the patient was 14/30.

Her blood investigation revealed macrocytic anemia whereby her hemoglobin level was 92 g/L with raised mean corpuscular volume (104 fl), raised mean corpuscular hemoglobin (34.2 pg), and mean corpuscular hemoglobin concentration (329 g/L). Her liver function was deranged with high bilirubin (71 umol/L), raised alkaline phosphatase (161 U/L), raised alanine aminotransferase (111 U/L), and raised gamma glutamyl transferase (3096 U/L). Hepatitis B surface antigen, hepatitis C antibody and HIV serology were nonreactive. Her renal function was normal.

Computed tomography scan of the brain revealed cerebral atrophy over the bilateral frontotemporal lobe. Incidental finding of 0.4 cm intracranial lipoma was noted at the left tentorium cerebelli adjacent to the left petrous temporal bone. Ultrasonography of her abdomen revealed fatty liver. Electrocardiography was normal.

She was treated for alcohol withdrawal in alcohol use disorder, which was alcoholic hallucinosis. Intravenous Parental Vit two vials daily were given for five days followed by oral thiamine 100 mg thrice daily. Oral
lorazepam 1 mg thrice daily was given for prophylaxis of delirium tremens. She was discharged after five days. Throughout the ward stay, the patient was alert and conscious. No seizure was notice.

During subsequent clinic reviews, the patient’s cognitive deficit persisted and her MMSE maintained. Her confabulation persisted and she had difficulty of registering new memory. Her long term memory was mostly intact. Hence she was diagnosed to have KS. The patient was sent to nursing home in order to make sure she had someone to look after her closely and prevent her from taking alcohol.

**Discussion**

KS can usually be prevented with high dose of thiamine during Wernicke’s encephalopathic (WE) phase. Nevertheless, once KS has set in there is no proven treatment to date that can reverse this organic amnestic disorder. Harm reduction approach, which is total abstinence from alcohol and long term thiamine are normally offered as tertiary prevention method.

Clonidine has been tried to enhance the memory of patients with KS but the result is not reproducible\(^5\). Lithium is also tried in the treatment KS as it has neuroprotective and anti-apoptotic factor. Lithium is shown to reduce neuroapoptosis via inhibition of glycogen synthase kinase 3\(^6\). Another chemical that is proposed is anthocyanins, a type of antioxidative flavonoids extracted from vegetables and fruits\(^7\). Nevertheless, there is no large clinical trial data to support the use of lithium and anthocyanins.

There is increase of alcohol per capita consumption in Malaysia\(^3\), which in turn signifies that the need of more vigilant monitoring of alcohol-related public health issues plus preventive strategy for irreversible alcohol related condition. Australia has introduced the strategy of enriching bread flour with thiamine since 1991. Since then the prevalence of Wernicke-Korsakoff Syndrome has reduced from 4.7% to 1.1%. Harper et al. also suggest the potential strategy of adding thiamine into alcoholic beverages to further reduce the prevalence of KS\(^8\). To date there is no structure thiamine fortification programme in Malaysia. Since there is limited information regarding the prevalence of KS among chronic alcohol use patients in Malaysia, more research is needed in order to quantify the affected population and possibility of implementing the similar strategy. Of course, limiting access to alcohol will still be the best preventive measures.

**References**


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