Delirium, caused by suspending treatment of hypothyroidism

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Abstract

Delirium, or acute confusional syndrome, is a set of symptoms whose care involves not only psychiatry, but also many other medical specialties. Being as how the syndrome is caused by multiple factors, it is important to recognize each risk factor affecting the patient in order to anticipate and prevent it. In case of diagnosis, identifying and treating the root cause that triggered is important, given that it has a high rate of comorbidity and an elevated cost of medical care. We describe a case where a patient with hypothyroidism began suffering from delirium due to an abrupt discontinuation of levothyroxine treatment. Previously, the patient was seemingly healthy. After the medical treatment was interrupted, sensory processing and behavior were altered, and symptoms fluctuated, for a short period of time, showing disorientation and memory and language impairment.

Introduction

Delirium is a complex neuropsychiatric syndrome with a multi-factorial etiology.1,2 One of the most prominently affected populations are elderly adults, but delirium can occur at any age.2 Delirium is characterized by a disturbance of consciousness and attention, in addition to changes in cognition, thought, memory, emotions and in the sleep cycle (inversions of the cycle).3,5 The symptoms tend to worsen during the night or in the early hours of the morning.

Onset of delirium occurs acutely, its symptoms tend to fluctuate, and it has a duration of a few hours to a few days. If the underlying cause is properly identified, symptoms can rapidly improve.1,6 There are certain factors that increase the possibility of developing delirium. Among its predisposing factors are: hospitalization, preexisting brain damage, polypharmacy, old age, dehydration, malnutrition, history of delirium, and male gender, among others.1,7 Some important precipitating factors are: complex surgical intervention, acute sickness, infections (especially in the urinary tract), immobilization, stressful environment, changes in medication and hyponatremia. The incidence is higher in hospitalized patients and in patients that recently came out of surgery.

Case Report

A 81-year-old female patient, living with her nephew, who is absent most of the time. One of her primary caregivers is her neighbor, who looks after her daily and makes sure that she is in good health and that she does not need anything. The neighbor and the patient, upon being interviewed, indicated that the patient usually has a good cognitive level, and that there are no major difficulties with her superior mental functions. Moreover, they claimed she has no problems doing housework or other activities. They consulted with a doctor because they were worried the patient may be developing early symptoms of dementia.

The patient has a history of chronic hyperthyroidism and hypertriglyceridemia. At the moment, these conditions are under control, as her primary caregiver treats the conditions with 0.1 mg of levothyroxine medication and 600 mg of gemfibrozil, administered daily. She denies having a family history of psychiatric illness and consuming any kind of substance or medication, other than those indicated by her primary physician.

The patient, at the moment of her mental examination, was dressed according to her age and gender, exhibited a good attitude and was very collaborative with the interviewer. She used an adequate tone of voice, normal verbal language, was capable of rational thought and adequate course and content, had sensorial perceptions without alterations, was conscious, seemed well oriented and alert, showed a slight difficulty with calculations, proved to have an adequate memory and proper capacity of abstraction, had adequate judgment and adequate illness perception. She displayed no reason to doubt her story.

The patient claimed that a month ago she suffered an episode of Senile Dementia, which lasted for 3 days, by that name she refers to cognitive impairments and alterations of consciousness, the list of signs and symptoms shown was corroborated by her neighbor. Previously she was seemingly healthy. The symptoms were apparent because she was leaving her activities unfinished for no apparent reason; for example, if she was eating she would stop all of a sudden with no explanation. She wanted to sleep only during the day, presented serious memory defects: she did not remember what had just been said to her and did not recognize her life-long neighbors. She forgot to shower, even though she used to do it daily, and she would have difficulty thinking clearly. She was not speaking clearly and others could not understand her. These symptoms would not last all day, but rather would present themselves in certain periods during these 3 days.

The patient mentioned she stopped taking levothyroxine weeks before that period claiming she had forgotten where she stored her medication and that her symptoms went away when she resumed her treatment as indicated in a first consultation in the emergency medical service, a Mini-Mental State Examination (MMSE) practiced in the same query showed a score of 22 points. She seemed worried this episode might repeat itself and might become permanent in the future.

Discussion

The patient who inspired this case review, is an 81-year-old seemingly healthy female, sensory processing and usual behavior were suddenly altered. This lasted for a short period of time, with constant fluctuations, showing symptoms of memory impairment, disorientation and language impairment, as stated by the patient. The patient requested a consultation after an episode of unusual behaviors that had...
started suddenly and developed in a 3-day period. As far as she can remember and as confirmed by her neighbor, she seemed disorganized, leaving her activities unfinished for no apparent reason and forgetting to resume them, showing significant memory loss (she could not remember who her neighbors were, people who she has known for decades), a potential inversion of the sleep cycle, wakefulness and a state of confusion. All these symptoms fluctuated and were not considered to be related to any other cognitive disorder.

Although during that period the patient appeared to be in a state that would fall under psychotic, she actually presented a rather typical case of delirium in accordance with the DSM-5 criteria for delirium. There is a set of criteria that is difficult to detect: family history, medical exams or analyses that suggest the episode is a direct physiological consequence of a condition, intoxication or withdrawal syndrome, or the exposure to a certain toxin (or a combination thereof).2 Symptoms described may resemble catatonia, but she only was having agitation not influenced by external stimuli, and the diagnostic criteria for catatonia needs three (or more) symptoms of catatonia.

During the actual interview, the patient was feeling better. The results of her medical exam showed a score of 27 points. The patient is a known carrier of hyperthyroidism and normally takes her medication on a daily basis. This treatment was interrupted abruptly, as she forgot to take her medication and, within 10 days, started to show the above-mentioned symptoms, which can be attributed to the seven-day half-life of levothyroxine. The thyroid-stimulating hormone and Thyroxine libre lab tests could not be performed because the patient attended the next consultation after she resumed her medication. That resuming the consumption of levothyroxine made her symptoms disappear supports the diagnosis of delirium caused by the sudden interruption of the treatment.

The sudden interruption of the chronic levothyroxine treatment triggered delirium symptoms, of which stress was the main trigger. The relationship between delirium and medication withdrawal was made more apparent due to the fast disappearance of the symptoms once the treatment was resumed.

Literature defines thyroid hormones as responsible for regulating the metabolism.8 A decrease in the level of thyroid hormones produces significant changes in the receptors of noradrenaline, serotonin, and GABAergic agents, but its psychiatric illness-producing mechanism is not clear.9 Accordingly, altering one of these neurotransmitters, in addition to variations of the thyroid hormone may cause delirium, as alterations in the function of neurotransmitters have been described, among others, as the physiopathological cause of delirium.10,11

The onset of symptoms caused by the sudden interruption of the levothyroxine treatment evidences that the decrease in thyroid hormone levels in the patient, in addition to her reduced capacity to cope with change and stressors common of her age, may have been the cause of delirium, which may reappear should the treatment be interrupted yet again.

Conclusions

Delirium is a multifactorial syndrome; therefore, identifying the triggering factor is vital to provide treatment. Once the initial problem is fixed, delirium is resolved. Identification is crucial for adequate diagnosis and treatment.

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