



Atorvastatin Induced Memory Impairment: A Case Report Highlighting Cognitive Side Effects

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Abstract

Atorvastatin is a member of the class of medications known as statins, or HMG-CoA reductase inhibitors. It will reduce the level of cholesterol in the blood by inhibiting an enzyme that the body needs to produce cholesterol. But, in some cases, it has been associated with memory impairment as a side effect. The adverse-effect profiles of all statins are comparable, with a low frequency of side events overall. Recent research links statins to a lower risk of Alzheimer's illness (1). This means that in some individuals those who are taking atorvastatin may experience difficulties with memory, such as forgetfulness or difficulty in recollecting information. However, it is not seen in all patients taking atorvastatin (2) This case report aims to explore the relation between atorvastatin and memory impairment. The report explains the patient who has complaints of memory impairment after the use of atorvastatin therapy.

Keywords: Atorvastatin, Memory impairment, Cognitive abnormalities

Introduction

Memory impairment is a complex and multifaceted condition that can significantly impact an individual's quality of life. While memory-related issues can arise from various factors, recently the use of atorvastatin shows memory-related issues in some patients but is rarely seen. Atorvastatin, which comes under the class of statin medications, has been shown to effectively lower cholesterol levels and reduce the risk of cardiovascular events. However, emerging evidence suggests that atorvastatin may also have an impact on cognitive function, particularly memory.

The pathophysiology of atorvastatin-induced memory impairment can have multiple mechanisms. Atorvastatin can cross the blood-brain barrier and interfere with the synthesis of cholesterol in the brain. Cholesterol is essential for the formation and maintenance of cell membranes, including those of

neurons involved in memory processes. Disruption of this cholesterol metabolism in the brain could affect the neuronal structure and function which will lead to memory impairment. Another mechanism is related to the role of cholesterol in the production of certain brain chemicals called neurotransmitters. Atorvastatin can affect the levels of neurotransmitters such as serotonin and dopamine, which play crucial roles in memory and cognitive function. Memory-related side effects may be caused by changes in the balance of these neurotransmitters.

Furthermore, atorvastatin affects differently in different people which emphasizes the value of individualized patient care and ongoing observation for cognitive abnormalities in those using this drug.

This case report will discuss the case of a 51-year-old male who had atorvastatin-induced memory impairment.

Case Report

A 51-year-old male patient who was diagnosed with acute coronary syndrome, systemic hypertension, type 2 diabetes mellitus and a history of coronary artery disease eight years back came for follow-up. He came with complaints of memory impairment, snoring and daytime somnolence. The patient was on Atorsave 20mg for the treatment of dyslipidemia which was now under control. His lipid profile found to be total cholesterol (TC) - 109 mg/dL, triglycerides - 125 mg/dL, low-density lipoprotein cholesterol (LDL) - 46 mg/dL, and, high-density lipoprotein cholesterol (HDL) - 38 mg/dL. His creatinine level was normal. His liver and kidneys were normal in structure and function. Memory impairment is likely associated with the use of atorvastatin and the dose of it has reduced. Now the patient is taking Atorsave 10mg.

Discussion

In this case, the patient shows memory impairment after the use of atorvastatin and when the dose was lowered it started to reduce the symptoms and showed gradual improvement. Our case report is similar to Strom BL et al., which shows memory impairment in patients after taking atorvastatin. It is believed that atorvastatin may likely cause memory impairment through its effects on cholesterol metabolism and the production of certain brain chemicals. Atorvastatin will interfere with the synthesis of cholesterol by crossing the blood-brain barrier and also it will affect the neurotransmitter level thereby affecting memory and cognitive function. Our case report also replicates the findings of DS Kings et al., who reported statin-related problems with cognitive impairment. Just like the limitations seen in the study conducted by BR Kidambi et al, our study also has its limitation of not having enough samples to completely understand the relationship between Atorvastatin and Memory impairment. Hence, it's important to note that more research is needed to understand the relationship between atorvastatin and memory impairment fully.

Conclusion

In conclusion, the case report shows the link between atorvastatin and memory impairment. It's important to consider the possibility of memory difficulties in individuals taking atorvastatin. However, it was also found that not all patients taking atorvastatin will induce memory impairment. By raising awareness and providing insights into this side effect, healthcare professionals can make informed decisions when prescribing this medication.

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Conflict Of Interest:

The author declares that the case report was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Abbreviations:

HMG CoA: Hydroxymethylglutaryl – Coenzyme A

HDL: High-Density Lipoproteins LDL: Low-Density Lipoproteins TC: Total Cholesterol

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