

THE DRAMATIC EFFECTS OF GALANTAMINE IN A PATIENT WITH EARLY-ONSET ALZHEIMER'S DISEASE

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SUMMARY

Introduction: We discuss the case of a 51 year old former mid-wife presented to the NHS Luton and Bedfordshire psychiatric services with a 2 year history of increasing forgetfulness with significant impairment to her daily function. She was diagnosed with non-familial early-onset Alzheimer's Disease (EOAD) and started on 8mg daily of the acetylcholinesterase inhibitor Galantamine.

Methods: The information for this study was gathered from patient notes, consultant, collateral and personal accounts. Periodic outpatient consultations at the NHS Luton and Bedfordshire psychiatric services were used to monitor Mrs LF's global, functional and behavioral progress. These were supplemented with the mini mental state examination (MMSE) at each outpatient appointment.

Results: The graph of MMSE scores illustrates severe decline in scores, followed eventually by increase in score to sustained improvement while continuing on galantamine. Functionally, this lady has successfully negotiated a divorce, moved into her own accommodation, began travelling on holidays, including abroad, with friends, and has now embarked on a new relationship.

Discussion: Whilst only being a single case study, this demonstrates the significant benefits which are attainable with Galantamine in EOAD. The extent of this improvement may be a result of individual variation, or perhaps a greater efficacy for this drug in the subset of 'early-onset' AD patients, which has long been thought to share the same mechanism as traditional AD. The responsiveness to Galantamine in this patient may suggest an alternative mechanism of Early Onset Alzheimer's Disease to typical Alzheimer's Disease in the over 65's.

Conclusion: The case raises interesting questions as to whether EOAD should be considered distinct to typical (over 65's) AD, given the greater than expected response to Galantamine.

Key words: Galantamine - Early Onset Alzheimers Disease - acetyl-cholinesterase inhibitor

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INTRODUCTION

Mrs. X, a 51 year old former mid-wife presented to the NHS Luton and Bedfordshire psychiatric services with a 2 year history of increasing forgetfulness with significant impairment to her daily function.

She was diagnosed with non-familial early-onset Alzheimer's Disease (EOAD) and started on 8mg b.d. of the acetylcholinesterase inhibitor Galantamine.

Galantamine a tertiary alkaloid, is a competitive and reversible inhibitor of acetylcholinesterase. It is used in the treatment of dementia due to Alzheimer's Disease. (Raskind et al. 2000, Tariot et al. 2000, Wilcock et al. 2000, Wilkinson et al. 2001, Erkinjuntti et al. 2002, Olin et al. 2003, Loy et al. 2006). The precise mechanism of action is unknown, although it probably exerts its therapeutic effect by enhancing cholinergic function, by increasing the concentration of acetylcholine at nerve synapses. Central cholinergic pathways are thought to play a prominent role in the learning and memory processes.

METHODS

The information for this study was gathered from patient notes, consultant, collateral and personal

accounts. Periodic outpatient consultations at the NHS Luton and Bedfordshire psychiatric services were used to monitor Mrs LF's global, functional and behavioral progress.

These were supplemented with the mini mental state examination (MMSE) – scored out of 30 – which served as an objective test for her cognitive impairment, as well as a guide for her response to treatment.

RESULTS

The graph begins from one of the earlier consultations in December 2002, when Mrs X had reported an inability to concentrate. She was becoming increasingly forgetful, and had lost confidence. She had tried making lists to aid her memory, to limited effect.

By early 2004 Mr LF was corroborating a worsening patient history, describing her episodes of low mood and frustration relating to the increasing memory impairment.

Galantamine was commenced on June 2004. The patient showed a marked improvement in MMSE from 23 (in October 2004) to 29 (in September 2008). The MMSE has remained at 29 until the last consultation in September 2009.

At an MMSE of 26 (February 2006), the patient reported subjective improvements in memory which correlated with the improved MMSE score.

The decline in MMSE during July 2008 may be related to Mrs LF's "difficult" divorce during this period – a decline which reversed once the marital separation was complete.

The patient accounts of social dysfunction due to her memory impairment pre-treatment highlights her gradual but significant recovery with Galantamine, to the point of being able to return to independent living arrangements and recently entering into a new relationship.

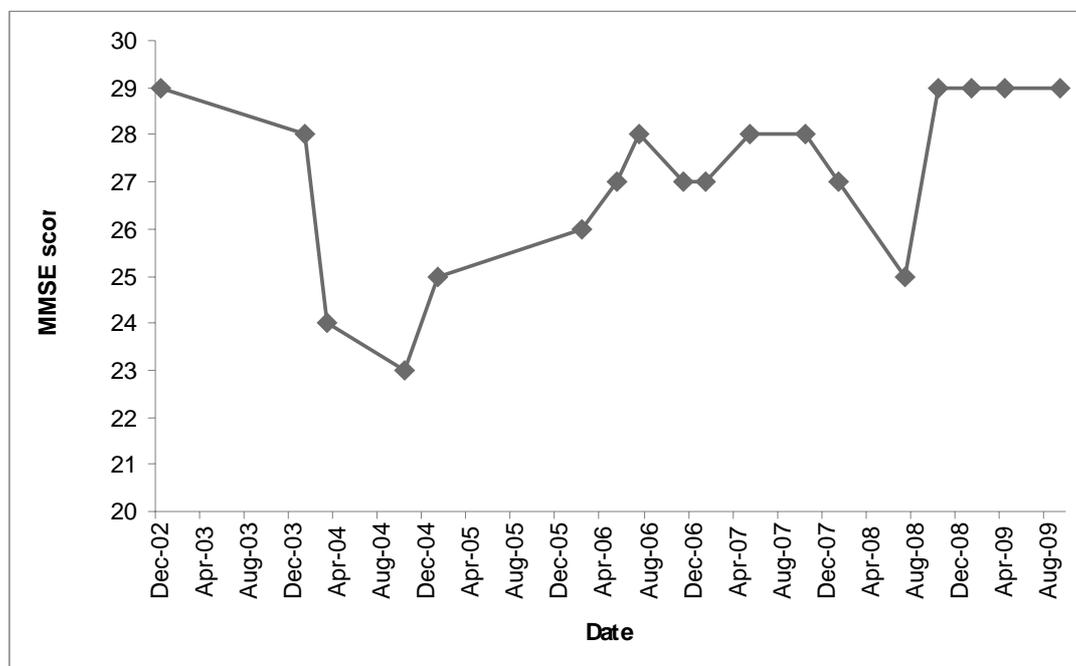


Figure 1. MMSE scores from 2002 to 2009

DISCUSSION

Whilst only being a single case study, this demonstrates the significant benefits which are attainable with Galantamine in EOAD. The extent of this improvement may be a result of individual variation, or perhaps a greater efficacy for this drug in the subset of 'early-onset' AD patients, which has long been thought to share the same mechanism as traditional AD. The responsiveness to Galantamine in this patient may suggest an alternative mechanism of EOAD to typical AD in the over 65's.

There have been few studies investigating therapeutic regimes in EOAD specifically, but the possible superiority of Galantamine compared to Donepezil and Rivastigmine, together with its unique allosteric effects on the nicotinic acetylcholine receptors, should be researched (Samochocki et al. 2002).

Reassessment of NICE guidelines for the possible benefits of prescribing earlier in cases of EOAD needs to be considered. Mrs LF described a decline in mental function even at an MMSE of 29, but a diagnosis of mild AD required an MMSE of 26 or less to warrant treatment. Despite this requirement, upon commencing treatment, the patient continued to improve above an MMSE of 26, up to 29.

CONCLUSION

The case raises interesting questions as to whether EOAD should be considered distinct to typical (over 65's) AD, given the greater than expected response to Galantamine.

The details of this single case also lend themselves to supporting a reconsideration of the NICE guidelines for when treatment can be started, which would require further research. Such research may benefit from a long-term database in which data regarding MMSE scores of patients treated with Galantamine is serially recorded.

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