

Pregabalin in the Treatment of Visual Hallucinations in Charles Bonnet Syndrome

Introduction

Charles Bonnet Syndrome (CBS) describes the occurrence of visual hallucinations after acquired visual impairment. It may be analogous to a visual equivalent of the phantom limb phenomenon. There is no established pharmacological treatment although there are reports of symptom resolution with neuroleptics and anticonvulsants. This case report describes a successful response to treatment with pregabalin in a patient with CBS secondary to bilateral optic nerve atrophy.

The Charles Bonnet Syndrome (CBS) refers to visual hallucinations occurring in visually impaired (usually elderly and neuropsychologically normal) people. There is agreement that for diagnosis hallucinations in other modalities and delusions should be absent and that subjects should retain insight into the unreality of the hallucinations. There is however no consensual definition of the syndrome and it remains poorly understood in terms of aetiology, pathophysiology and treatment.¹

Case report

This case report describes a patient with Charles Bonnet syndrome following bilateral optic nerve atrophy who responded to treatment with pregabalin.

A 59-year-old man, previously well, presented with a brief history of headache, photophobia, fever and confusion following an ear infection. He was assessed in A&E and found to have a Glasgow Coma Scale (GCS) of 8/15.

Examination showed him to be agitated with bilateral increased tone, bilateral upgoing plantars and haemorrhagic papilloedema in his right fundus. He was normotensive with a sinus tachycardia and a temperature of 37.5. He was intubated and admitted to ITU. Cefotaxime, flucloxacillin and acyclovir were started empirically. A CT brain scan suggested raised intracranial pressure and a hypodense area in the left basal ganglia. MRI brain showed septic vasculitis with pus in the ventricles. Lumbar puncture was contraindicated due to the presence of raised intracranial pressure but blood culture was positive for pneumococcal antigens.

The patient's GCS improved to 12/15 after two weeks and 15/15 thereafter. Residual deficits include bilateral optic nerve atrophy; with no light perception in the left eye and minimal light perception in the right eye. He is now registered severely visually impaired. He also has bilateral oculomotor nerve palsies, a partial seventh nerve lower motor neurone palsy on the left, severe sensorineural hearing loss on the right and also some sensorineural hearing loss on the left. His balance is poor.

The patient was admitted to the regional neurorehabilitation unit four months after becoming ill and it was here that he first disclosed experiencing visual hallucinations (although these had begun approximately one month previously).

The hallucinations were initially of animals, often appearing as cartoon dogs and cats doing tricks, and were not experienced as unpleasant. He then began to 'see' panoramic scenes of cliffs and coastal bays, with himself situated at the top of the cliff in his wheelchair, with the front wheels about to go over the edge of the drop. This was very distressing and at one point he was constantly asking his sons or staff to move him around his room, to try to get to a 'safer' location; this was to no avail as the visions moved en bloc with him. Whereas previously he had had some control over his hallucinations, for example making them disappear by blinking or turning his head,

the patient was now unable to modify his terrifying visions. He did retain insight into the unreality of his hallucinations but their vividness and immediacy made them very powerful. His experiences began to interfere in his rehabilitation in that he was scared to try to walk with the physiotherapists as he felt himself to be continually on the edge of a cliff.

Routine haematological investigations at this time were normal. He had recurrent urinary tract infections due to the presence of an indwelling catheter but on assessment he was in clear consciousness and fully orientated. He was not found to hold any delusions and there were no hallucinations in other sensory modalities present. He was not clinically depressed and no significant cognitive problems were identified with the Weschler Adult Intelligence Scale – III and the Weschler Memory Scale (verbal subtests only). There was no significant past medical or psychiatric history and his only medication was viscotears and a short course of hydrocortisone cream for his left leg. His presentation was felt to be consistent with Charles Bonnet Syndrome.

Due to the persistence, distressing nature and interference with the rehabilitation process a trial of pharmacotherapy for the hallucinations was commenced. Pregabalin 150mg nocte was prescribed, resulting in an improvement in anxiety symptoms within a few hours and an improvement in visual hallucinations after two days. At this point he was continuing to have hallucinations of cliff faces but found them less distressing than previously. After one week the dose of pregabalin was increased to 150mg bd. Following this, he stopped hallucinating cliff faces completely. He continued to have occasional hallucinations of animals or people but these are of no concern to him and he has regained some control over them by closing his eyes or turning his head. Overall, the patient considers that there has been a 90% reduction in his hallucinations (his subjective estimate). Pregabalin was well tolerated with no side-effects. The patient was able to fully participate in rehabilitation once again.

Discussion

There is no established treatment for CBS and the prognosis is variable. In some patients hallucinations may disappear after a few weeks or months but others will have persistent hallucinations for many years.² Improvement in vision or indeed deterioration to total blindness can eliminate the hallucinations^{2,3} and non-pharmacological interventions such as altering the lighting level and reducing social isolation can also be helpful.³ However, for those patients who are significantly distressed by their symptoms a trial of pharmacotherapy is indicated. Treatment choice may be influenced by the way in which CBS is conceptualised. If the syndrome is regarded as an organic hallucinosis causing disturbance to neurotransmitter systems, then this would be a rationale for treatment with neuroleptics. In the recent literature there are case reports supporting the use of olanzapine,⁴ sulpiride⁵ and melperone.⁶ These reports show a response to treatment on average within one to two weeks. This is slower than that observed with pregabalin in our patient. There were reported problems of side-effects with sulpiride (sedation and motor effects)⁵ and olanzapine (sedation).⁴ It is known that longer term administration of atypical neuroleptics can have adverse metabolic effects⁷ which could be undesirable in the elderly population.

Another widely accepted causal hypothesis for CBS is



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that of deafferentation of the association areas of the visual cortex, leading to hyperexcitation in these areas and either 'release' of previously inhibited visual engrams which are experienced as complex visual hallucinations, or spontaneous generation of new intracerebral perceptions.^{1,2} This can be regarded as a visual equivalent to the phantom limb phenomenon.^{1,8} It might consequently be expected that drugs used to treat phantom limb pain could have a use in CBS and indeed there are reports of effective treatment of CBS with carbamazepine,⁹ sodium valproate¹⁰ and gabapentin.²

Bhatia et al treated a patient with CBS with carbamazepine after he had not responded to haloperidol, antidepressants or an anxiolytic.⁹ His symptoms improved over three weeks. In the two reports of treatment with valproate it was well tolerated although onset of symptom resolution was again slower than our patient¹⁰ but gabapentin showed a comparable speed of onset and tolerability.² Pregabalin, approved in the UK for use in the management of peripheral neuropathic pain and partial epileptic seizures since 2004, is related to gabapentin and has a similar mode of action, modulating calcium influx and thus reducing the release of excitatory neurotransmitters, and influencing GABAergic neurotransmission. However, pregabalin is more potent than gabapentin and is considered to be effective at lower doses, thus leading to fewer dose-related side-effects. It has other favourable properties including minimal

hepatic metabolism which translates into fewer drug interactions. This is of particular relevance in the predominantly elderly CBS population.¹¹

This report is the first to describe the use of pregabalin in treating the visual hallucinations of CBS. Further research is needed in order to establish its effectiveness. It is possible that the faster onset of symptom resolution and more favourable side-effect profile would make pregabalin preferable to antipsychotic medication. It is not known how long to continue treatment before considering a withdrawal of the drug but clinical practice in treating phantom limb pain indicates that medication should be continued for at least six months before dose reduction is attempted. This area requires further investigation. Given the lack of consensus over diagnostic criteria, CBS is likely to be a heterogeneous disorder and as such treatment should be tailored to each individual patient. This case report suggests that pregabalin may be a useful additional choice of therapy for those patients with CBS whose symptoms warrant a trial of medication.

Acknowledgements

We express our thanks to our patient for allowing his history to be used in this case report.

Competing interests: None declared

Funding: None obtained

Consent was obtained for publication of the patient's details described in this report.

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