When Visual Impairment Manifests Hallucinations A Review of Charles Bonnet Syndrome

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Introduction

- Charles Bonnet Syndrome (CBS), typically presents with visual hallucinations – and it is directly caused by long-standing, ocular disease.
- Though different theories exist concerning the pathophysiology of CBS, the most widely accepted explanation is that a severe reduction in visual acuity causes deafferentation of the visual sensory pathway and subsequent disinhibition of the cortical regions of the brain that affect vision (1). fMRI studies of patients with CBS support this theory, revealing the presence of activity in the ventral occipital lobe and visual cortical regions during episodes of hallucination (2).
- It is estimated that only 15 percent of patients with CBS will ever admit to their healthcare provider that they experience hallucinations due to a fear of being diagnosed with mental illness or dementia (3).

Case Description

- A 96-year-old woman with a past medical history of AMD, hypothyroidism, hypertension, multiple hospital admissions for UTI's, and no past psychiatric history presented to the emergency department with altered mental status (AMS) and visual hallucinations.
- The patient presented displaying behaviors which differed from baseline. Labs, urinalysis, chest x ray, and head CT were all within normal limits.
- She was first diagnosed with AMD around 50 years ago. At the time of exam, she was only able to count fingers and roughly make out shapes.
- Her first visual hallucinations began approximately 10 years ago and occur on a weekly basis. These hallucinations include seeing family members, animals, and "things people see in everyday life." She also added that they occasionally contain an auditory component which contextually supplements the imagery.
- The patient denied any history of psychiatric disorder, family history of mental disease, or any use of alcohol/illicit drugs. Her mental status exam was unremarkable. Subsequent referral to neurology confirmed visual and auditory impairment, but otherwise neurologically intact.

Table 1. Diagnostic Criteria of Charles Bonnet Syndrome[a]

- Visual hallucinations
- Severe visual impairment
- Partially/fully intact insight (patient aware visions are not real, despite appearing very real)
- No evidence of brain disease or other psychiatric disorder
- No other senses affected, such as taste, hearing, and smell

[a]Table based on information from reference 1 in the citation list.

Table 2. Treatment Options for Charles Bonnet Syndrome[a]

Nonpharmacologic Interventions (Preferred)

- Assure patients, their caregivers, and their families that the hallucinations stem from their visual impairment and are not indicative of a mental illness
- Encourage social contact and activities that engage the mind
- Treat ophthalmologic diseases to the extent possible (eg, remove cataracts)
- Optimize vision (eg, encourage use of corrective lenses)
- Improve lighting and reduce glare

Pharmacologic Interventions

Antianxiety Agents (SSRIs)
- Citalopram
- Paroxetine
- Fluoxetine
- Sertraline

Anticonvulsants
- Valproic acid
- Carbamazepine
- Gabapentin
- Clonazepam

Antipsychotics
- Risperidone
- Olanzapine

Cholinesterase Inhibitor
- Donepezil

Abbreviation: SSRIs, selective serotonin reuptake inhibitors.
[a]Table based on information from references 9 and 15 in the citation list.

Discussion

- Though the presence of auditory hallucinations typically rules out CBS, our patient experienced auditory hallucinations exclusively in the context of sepsis and only her visual hallucinations were chronic. Given the non-distressing nature of her hallucinations, our patient disclosed that she did not want to start any psychotropic medications. There is currently no specific, agreed-upon treatment for CBS other than treating the underlying cause of vision impairment (4). Despite this, some case studies report success with using a low dose of risperidone and valproate (5). Other reports showed improvement with SSRIs as well as Clonazepam and Gabapentin (6). One control trial demonstrated reductions in frequency of hallucinations in CBS with transcranial direct current stimulation (7). While the choice of pharmacological treatment remains open for debate, patients can still make meaningful improvements in their hallucinations. Because it is known that patients are more likely to experience CBS hallucinations when in settings of low light and low stimulation, patients must be encouraged to participate in activities that stimulate their mind. This may include participating in social activities, remaining active in the community, and occupying the brain with other stimuli, such as board games or crafts.
- Ultimately, it is important that both patients and healthcare providers understand that this condition is not a neurodegenerative disease or a psychiatric illness. Further education is needed so that ophthalmologists can recognize and treat CBS. We hope that this presentation may add to that education.

References

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