Development of psychotic symptoms involving cochlear implant

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Purpose

To present a unique case demonstrating the difficulties in managing quality of life in patients with concurrent psychosis and hearing impairment

Background

Definitions:

Schizophrenia according to the DSM-5[1]:

- At least two of the following symptoms must be present, with at least one of these from the first three symptoms listed:
  - Delusions
  - Hallucinations
  - Disorganized speech
  - Grossly disorganized or catatonic behavior
  - Negative symptoms
- The above symptoms persist for ≥ 1 month.
- There are continuous cognitive or affective disturbances for ≥ 6 months.
- Symptoms must cause social, occupational, or personal functional impairment lasting ≥ 6 months.

Indications for cochlear implant[2]:

- Moderate to severe sensorineural hearing loss
- Unsuccessful prior treatment attempt with hearing aids

Prior research and guidelines[3,4]:

- Cochlear implantation in psychosis requires careful consideration due to potential challenges related to auditory stimuli and mental health stability.
- Prior to 2012, psychosis was a contraindication to receiving a cochlear implant.
- Concerns persist that introducing new auditory inputs might exacerbate hallucinations or delusions in individuals with underlying psychosis.
- No official guidelines exist in the U.S. for placing a cochlear implant in someone with psychosis, or for how to screen someone for psychotic symptoms prior to implantation.
- One case series of three patients found that cochlear implantation improved quality of life without worsening psychiatric symptoms.
- Proposed framework for choosing when to place implants in patients with psychosis relies on ethical considerations and theorized clinical benefit.
- Hearing loss can be isolating, which can worsen outcomes in psychosis.
- CBT is beneficial in psychosis, but efficacy can be reduced if hearing loss impairs communication.

Case Presentation

A 47-year-old male with a psychiatric history significant for schizophrenia and post-traumatic stress disorder (PTSD) was admitted to the TVBH K8 unit on April 17, 2024, for competency restoration.

History of Present Illness at Admission:

- Patient arrested February 2023 for violating a protective order (VPO), with a second charge following in June 2023.
- His ability to understand court proceedings was impaired by perceptual disturbances, delusional beliefs, and paranoia, leading to an inability to participate in his defense.
- Although cooperative during assessment, the patient demonstrated difficulties in communication, partly due to hearing impairment.
- Patient has persistent hearing loss due encephalitis at age five with cochlear implant placed in 2015.
- Patient has hallucinations involving the device, including command hallucinations received as broadcasts, thought broadcasting, and belief he had a Neurolink device placed to treat PTSD.

Psychiatric History:

- Initial symptoms began in 2010 per self-report, first charted schizophrenia diagnosis was in 2022.
- Six psychiatric hospitalizations since diagnosis.
- Self-reported PTSD diagnosed in 2010 with spontaneous resolution in 2022
- Treatment history includes trials of multiple antipsychotics, with current treatment comprising haloperidol decanoate, olanzapine, benztropine.

Past Medical/Surgical History:

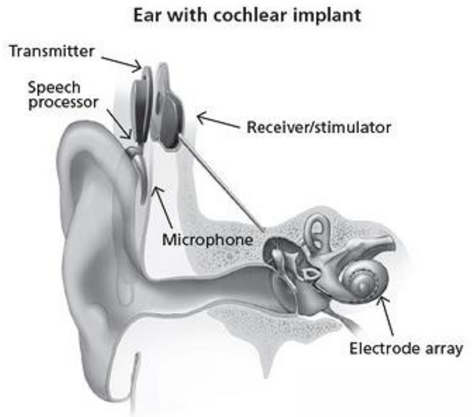
- Per chart, BPH, iron deficiency anemia, vitamin D deficiency, GERD.
- Currently prescribed tamsulosin, vitamin D, iron.

Psychosocial History:

- Patient has been intermittently homeless outside of psychiatric hospitalizations and incarceration.
- Previously a computer technician with vocational training
- Significant smoking history.
- Family history of schizophrenia in father and brother.

Brief Hospital Course:

- He reported persistent anxiety, present since early adulthood
- Psychotic symptoms include auditory disturbances, (constant phone alarm sound in his head), paranoid delusions, and somatic delusions. Thought processes noted as evasive, disorganized, and marked by paranoia about surveillance.
- Patient was nonadherent to outpatient medications, so was started on olanzapine and titrated up to 20mg qd. Haloperidol available prn, only requested intermittently for help with sleep.
- Disorganized behavior and thought processes improved with medication. Auditory hallucinations reported to resolve with diminished responding to internal stimuli. Paranoia persists, although patient is more cooperative.



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Conclusions

This case highlights the complexities of treating severe psychiatric symptoms amidst significant sensory impairment and cognitive disturbances, underscoring the importance of tailored interventions in competency restoration for individuals with chronic psychiatric illness. Additionally, this case highlights the added considerations in placing cochlear implants in patients with a history of or high risk for psychosis. Quality of life can be greatly improved by restoration of hearing via cochlear implant, but in those with psychotic, paranoid, and delusional disorders, the implant can become an added source of anxiety that cannot be removed or avoided. While literature suggests high caution for placing cochlear implants in those with diagnosed schizophrenia, this is not considered an absolute contraindication. Additionally, there is insufficient guidance in how to manage patients needing implants that are at high risk for psychosis but without a diagnosed disorder. Ultimately, there is a need to establish official guidelines for implants in psychosis, and for more research into the risks and benefits of placing an invasive device like cochlear implants into those with psychosis.

References

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