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Case Report Open Access

Adrenal Psychosis, A Diagnostic Challenge

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Abstract

The purpose of this case discussion is to improve awareness of physicians to the fact that inadequate production of cortisol could produce psychosis. Psychosis or psychiatry disorders could be a presentation of a defect in cortisol production due to a problem with the hypothalamic-pituitary-adrenal axis and organic psychosis. In patients with recurrent psychiatric hospital admissions and failure of multiple antidepressants, it may be prudent to revisit organic causes of psychosis. Though more studies need to be done, the author want a discussion on this topic to improve awareness of physicians about this possibility before starting or adding psychotropic medications in view of the potential side effects associated with these medications.

When All Psychotropic Combinations Fail, Revisit Organic Causes of Psychiatric Problems

Case

Patient is a 56 year old Caucasian male who was admitted via the emergency room after a 24 hour history of insomnia, delusion of persecution and auditory hallucination. He heard voices telling him different things though could not make out distinctly what they were saying. Also he feels everyone was against him. A week prior to admission, he had presented to his Primary care physician with a history of progressively worsening dizziness and facial asymmetry. CT scan of the brain was negative and he was prescribed prednisone 20 mg daily for 5 days. On the last day of taking the medication, patient could not sleep, had 3 episodes of vomiting and started hearing voices. He denied any headache, blurring of vision or visual hallucinations. He also denied any suicidal or homicidal ideation.

His past medical history is significant for hypertension, depression with anxiety, PTSD, COPD and bilateral knee replacement.

He had multiple psychiatric admissions in the 4 years preceding index admission and has tried different combinations of psychotropic medications for his depression, yet with frequent relapse.

Medications are olmesartan, quetiapine, venlafaxine, clonazepam, zaleplon, Trazodone and acetaminophen plus hydrocodone.

He smokes cigarettes and drink alcohol but denied illicit drug use. Patient is divorced with 2 children and no previous psychiatry illness in the family. On admission, vital signs are Temp 98.7, PR 88 bpm, BP was 163/109 standing and 126/92 mmHg sitting [1]. Patient was awake, alert and oriented to time, place and persons. There was mild flattening of the right nasolabial fold. Oral mucosa was dry, he was cooperative, speech was pressured, affect was appropriate, had auditory hallucination, delusion of persecution, no suicidal ideation.

Other examinations are normal
EKG was normal
Lab work up revealed a random cortisol of <1
ACTH 5, cortisol baseline <1, 30 mins 4.3, 60 mins 4
TSH 2.128, FreeT4 0.6
FSH 2.5, LH 1, Prolactin 17.22, GH 0.1
CBC and Electrolytes, urea and creatinine were normal
Drug screen was negative
Imaging-CT scan of brain, MRI of brain, CT scan of abdomen and pelvis were all negative
Carotid Doppler was not significant

He was commenced on hydrocortisone 100 mg 8 hrly, fludrocortisone 0.1 mg twice daily and levothyroxine 50 mcg daily. Patient improved and was discharged on the third day. He was followed up at outpatient clinic. Further work up post discharge showed patient had Type 2 diabetes, secondary hypogonadism, and secondary hypothyroidism.

He was subsequently weaned off some of his psychotropic medications. 2 years post discharge, he is only taking ambien for sleep and anxiety, alongside bupropion for smoke cessation and also useful for any break out depression. Other medications include levothyroxine, glyburide, metformin, hydrocortisone, depo-testosterone and acetaminophen and hydrcodone for pain. He is also yet to have any psychiatric hospital admissions.

Discussion

Patient's clinical scenario presented a diagnostic dilemma between managing as a case of primary psychosis or look for medical causes of psychosis. With a history of recurrent psychiatric admissions and new symptoms like dizziness and progressive weakness, it was imperative to rule out other medical conditions [2,3].

Other possible differentials of Psychosis are-

Primary psychosis: Schizophrenia, brief psychotic disorder, Shizoaffective disorder, depression with psychosis and bipolar disorder [4].

Drugs or toxins: Drug induced psychosis could either be prescription or recreational. Examples of prescriptions drugs causing psychosis are Corticosteroids, Thyroid hormones, Dopamine agonist, Adrenergic e.g. clonidine and propanolol. Recreational drugs are common causes of psychosis which includes Cocaine, Cannabis, Phencyclidine, Alcohol, Amphetamines [4,5].

Neurological disorders e.g. Seizure disorders which could be further classified as Ictal, Post ictal or Interictal psychosis based on the period of onset in relation to the seizure event [4].

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Other neurologic causes are Traumatic brain injury, Space occupying lesions, Multiple sclerosis, Dementia [5].

Endocrine disorders: Any sudden variation in hormones could induce Psychosis. Thyroid dysfunction, either hyperthyroidism or hypothyroidism.

Variation in cortisol levels either hypercortisolism or insufficiency of the Adrenal gland [3], Hyperparathyroidism could produce somatic symptoms from calcium and magnesium imbalance. Post parathyroid adenoma resection could cause low magnesium which can predispose to delirium with psychosis.

Pancreatic disorders such as diabetes mellitus, pancreatic tumors could lead to variation in blood sugar levels. Treatment of pancreatic disorder especially diabetes could cause hypoglycemia and present as delirium with psychosis.

Infections: Especially encephalitis of any cause [4,5]. Viral causes of encephalitis are Herpes simplex, HIV, Measles, Mumps, Epstein Barr virus, Rabies.

Bacterial causes are Spirochetes and Mycoplasma
Parasites e.g malaria
Fungi-cryptococcus

Vitamin deficiency: Folate deficiency, Vitamin B12 deficiency [4].

Autoimmune causes e.g. Systemic lupus erythematosus [5].

Cardiopulmonary causes: Myocardial infarction, Congestive heart failure, Hypoxia , Chronic obstructive pulmonary disease [5].

Diagnostic considerations were given to: Drug induced psychosis- His drug screen was negative. Steroid induced psychosis was considered, however due to his past history of psychosis, the corsyntropin stimulation test was performed which produced a flat response [6].

Vascular events - which was ruled out by EKG, Carotid Doppler and CT scan of the brain.

Space occupying lesions- MRI of Sella was negative ruling out any brain tumor.

Electrolyte imbalance- His electrolytes were all normal

Conclusion

Patients can present with somatic symptoms following organic problems. Most patients usually undergo screening for organic psychosis especially in first time patients [7]. In patients with recurrent psychiatric admissions, it is important to revisit organic psychosis for possible new symptoms, especially when multiple psychotropic medications are not helping the patient. In this patient, the onset of new symptoms led to further investigations. It's never too late to revisit organic psychosis.

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