



PSYCHOSIS, A RARE SEQUELA OF OUT-OF-HOSPITAL CARDIAC ARREST, A CASE REPORT

Psychiatry

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ABSTRACT

Mental illnesses like Depression, Anxiety and Post traumatic stress disorder(PTSD) have been commonly reported as psychiatric sequelae in patients resuscitated from out-of-hospital cardiac arrest(OHCA). Psychosis, a severe form of mental illness has not been reported in the patients of OHCA till now. We describe a rare case of patient resuscitated from cardiac arrest developing psychosis which responded well to low dose antipsychotic.

KEYWORDS

Cardiac Arrest, Mental Illness, Psychosis, Rare Sequelae, Survivors

INTRODUCTION:

Out-of-Hospital-Cardiac-Arrest (OHCA) has a high global prevalence of approximately 50-55 events per 100000/ person years. Survival rates in such events is low ranging from 2%-23%. (1, 2) Even in the survivors of such events, the quality of Life and long-term survival rates are low due to the neurological, cognitive and psychiatric sequelae. (3) Mental health is significantly affected in the survivors of OHCA with data showing prevalence of Depression between 14%-45%, anxiety between 13% to 61% and Post Traumatic Stress Disorder (PTSD) between 19 % to 27%. (4) Till now Psychosis has not been reported as a Psychiatric sequela of OHCA. Psychosis can have more grave impact on the Quality of life of the survivors as well as higher burden of care. The treatment of psychosis can also have implication on the cardiac status of the patient as the antipsychotics can cause conduction defects as well as metabolic syndrome increasing the risk for further cardiac events. Thus psychosis, a rare but an important sequela of cardiac arrest should also be assessed for in patients of OHCA.

Case Report:

A 43 years old lady, 10th educated, homemaker mother of 2 children, resident of Leh, a known case of bronchial asthma for 20 years, on Formoterol + Budesonide, currently asymptomatic and off medication for last 6 years, has no other significant past or family history of any other medical, surgical or psychiatric illness. Patient developed anaphylaxis to injection Metoclopramide given for Acute Gastroenteritis at a small clinic and subsequently suffered a cardiac arrest on the way to the District hospital. In the hospital, within around 45 mins of the anaphylactic reaction, patient was received with a GCS of 4/15 and ECG findings suggestive of acute coronary syndrome. She was given CPR and was successfully resuscitated. Diagnosed as Anoxic brain damage with residual paralysis, patient was managed with Mechanical ventilation (SIMV mode for 4 days, tapered to CPAP for the next 3 days followed by oxygen support through nasal prongs), injection mannitol, injection dexamethasone, and iv antibiotics. Patient was in comatose state for around four days following which she showed gradual improvement in the next few days in the consciousness and orientation. According to the patient's husband who is the main caregiver, patient also started reporting fearfulness, and getting agitated. She would occasionally ask the husband not to go out as there is threat for his life. No psychiatric reference was done. After 15 days, patient showed significant improvement in the consciousness, orientation, oral intake and she was discharged with a GCS of 15/15, stable vitals, grade 4 power in all 4 limbs, ?neurocognitive deficits and psychotic symptoms.(details not available in the medical reports). Neuroimaging could not be done due to logistic reasons. As per the husband, patient continued to report fearfulness, started muttering to self and also would get agitated occasionally, had disturbed biological functions and needed help for activities of daily living. After 2 months of the event, patient was referred to the psychiatrist in view of the psychotic symptoms and unmanageability at home. On examination, patient was oriented to time place and person, vitals were normal, power grade 5/5 in all 4 limbs across all joints, cranial nerves intact, Mini Mental State Examination score 13/30 and mental status examination showing irritable, reactive affect, delusion of persecution, auditory hallucination, second person and visual hallucination and absent insight. Diagnosis of Organic Delusional (schizophrenia-like) Disorder with hypoxic ischemic brain injury secondary to cardiac

arrest was made. Blood investigations of complete blood count, liver function test, kidney function test and serum electrolytes were within normal limits. She was started on tablet Risperidone dose of which was increased to 2 mg, along with tablet Donepezil 5 mg. She showed significant improvement in the psychotic symptoms as well as neurocognitive deficits over the next two months and her MMSE score increased to 23/30. Patient showed further improvement and after one year, patient is now off medications, with no residual neurocognitive deficits. Patient has started participating in family conversations as well as the household work.

DISCUSSION:

Mental illness like Depression, anxiety and PTSD have been reported extensively in the survivors of OHCA, but with no clear understanding of the pathophysiology, they go undiagnosed and untreated leading to detrimental effects. While the etiology of these sequelae has been believed by some to be the multistage injury resulting from the global cerebral hypoxic ischemic state caused by the plummeting of cerebral blood flow secondary to the cardiac arrest or the reperfusion injury after successful CPR. Some suggest it to be consequence of the psychological stress of the event itself and the subsequent treatment process like ICU admission, near death experiences. (5) In a study on the survivors of OHCA, 35% scored above diagnostic cut-off on Hospital depression and anxiety scale (HADS) and 14% showed clinically significant symptoms of depression and 13% that of anxiety. (6) An Australian study has shown that as many as 71% of young survivors of cardiac arrest had moderate to severe anxiety. (7). In a Swedish Study, 16 % p of the participants scored positive for PTSD with the cut-off method and 21% when evaluated with the symptom-criteria method using PTSC Checklist Civilian version. (8)

None of the studies have reported psychosis as a sequela in such cases. The patient in the case report suffered cardiac arrest and was successfully resuscitated. But developed psychotic symptoms within a few days. She was diagnosed as Organic Delusional (schizophrenia-like) Disorder as per ICD-10 diagnostic guidelines. Cardiac arrest leads to global hypoxic ischemia and subsequent CRP leads to reperfusion injury which can be possible cause of psychosis. There was temporal correlation with the patient developing psychotic symptoms within a few days of the event. She showed gradual but significant improvement with low dose antipsychotics. No other possible cause like genetic loading was present in the patient. Delusion of persecution along with both auditory and visual hallucination with absent insight was elicited over serial mental status examinations when the patient was conscious and oriented.

Psychosis has been reported in patients of cerebral hypoxia due to other causes like suicidal hanging, Carbon Monoxide CO poisoning, exposure to high altitude etc. Psychosis has been reported to be a presentation of Delayed prolonged hypoxic encephalopathy cases due to prolonged cerebral hypo-oxygenation due to various cause. (9) Mountaineers have also been reported to develop psychosis on exposure to extreme high altitudes with or without symptoms of high altitude cerebral edema which is implicated to cerebral dysfunction due to hypobaric hypoxia along with the psychological stress. (10) Understanding these conditions can help in understanding the pathophysiology of psychosis and other mental illnesses in survivors of OHCA.

The treatment of psychosis was started in lines with other cases of psychosis due to brain damage and dysfunction, following the dictum of 'start low, go slow but go'. She was put on low dose risperidone which was gradually increased over two months. Patient showed significant improvement at tab Risperidone 2mg. Tab donepezil was added in view of the role in the cognitive impairment.

As psychosis has been reported extensively as sequelae to hypoxic brain damage, the rarity of it in survivors of OHCA is intriguing. There is possibility of psychotic symptoms being missed in such patients which can hamper the outcome and quality of life of such patients. Thus, evaluation of such patients for psychosis is also of immense importance besides depression, anxiety and PTSD.

Limitations:

Neuroimaging of the patient could not be done as MRI facility was not available in the civil hospital in Leh. Assessment of the cognitive functions was not done for the initial two months before the patient reached the psychiatrist and subsequently for one month due to psychotic symptoms. Patient received corticosteroid in the form of injection dexamethasone during the acute management in the ICU which can be another possible reason for the psychosis but corticosteroid induced psychosis has been reported to be more common with oral steroids, in high doses while the patient has received only injectable dexamethasone 8 mg twice a day for the first few days. The psychotic symptoms lasted for as long as eight weeks before the patient was even put on antipsychotics. Further patient has been on other forms of corticosteroids as a part of treatment for bronchial asthma for a long duration without developing psychotic symptoms.

Consent: informed consent to write and publish the case report was taken from both the patient herself and the husband.

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