

# Anti-Psychotic Induced Sudden Cardiac Death in Umuahia, Abia State, Nigeria: A Case Report

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## ABSTRACT

In patients with psychotic disorders like schizophrenia, the commonest cause of death is suicide but episodes of cardiovascular events, usually ventricular arrhythmias due to antipsychotic medications account for most of 5% of deaths which are sudden and unexpected in schizophrenic patients on anti-psychotic medications. This report aims to highlight the rare but fatal cardiovascular side effects of anti-psychotic medications especially in patients already predisposed to cardiovascular events. The largest modifiable variable for anti-psychotic induced sudden cardiac death is a background cardiovascular disease. Identifying and treating them, together with other risk factors may help prevent this cause of unexpected death.

**Keywords:** Sudden Cardiac Death, Anti-Psychotics, Schizophrenia, Ventricular Arrhythmia.

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## INTRODUCTION

Sudden Cardiac Death (SCD) is defined as an unexpected sudden death of cardiac cause, in a person without any previous conditions appearing fatal, which occurs within a short period of one hour or less from onset of symptoms,<sup>1</sup> but the American Heart Association gave a recent definition of SCD as the cessation of cardiac mechanical activity, as confirmed by the absence of signs of circulation.<sup>2</sup>

About 300,000 to 400,000 people die from SCD yearly in the USA,<sup>3</sup> and about 40% of these are unwitnessed.<sup>4</sup> Nation-wide data on SCD is lacking in Nigeria but according to the Ile-Ife study, out of 2,529 medico-legal autopsies were reviewed over 10 years, 79 were found to be cases of sudden cardiac deaths (SCD). The SCD cases consisted of 59 males (74.7%) and 20 females (25.3%), with age ranging from 27 to 80 years. A total of 68 cases (86.1%) were brought dead into the hospital and 38 (55.1%) of these were apparently healthy prior to death.<sup>5</sup>

Prodromal symptoms are often non-specific and can only be suggestive at most. They include: chest pain, palpitation, dyspnea.<sup>4</sup>

Disease states associated with SCD include: coronary artery disease, cardiomyopathy, left ventricular hypertrophy, valvular disease, congenital heart disease, and primary electrophysiological abnormalities.

Risk factors for SCD include: Age, race, sex (75% more in men), strenuous activity. Others include hypertension, left ventricular hypertrophy, intraventricular conduction block, elevated serum

cholesterol, glucose intolerance, decreased vital capacity, smoking, relative weight, hypokalemia, hypomagnesaemia and heart rate.<sup>4</sup>

Drugs have also been implicated as risk factors of SCD. Documented groups of drugs in literature include anti-arrhythmic drugs,<sup>4</sup> potassium wasting diuretics,<sup>4</sup> phosphodiesterase inhibitors,<sup>3</sup> opiates like methadone,<sup>6</sup> and antipsychotics.<sup>7</sup>

Antipsychotics refer to a group of medication used primarily to manage the psychiatric condition known as psychosis, usually schizophrenia and bipolar disorder. They are also used to treat some non-psychotic disorders like obsessive-compulsive disorder, post-traumatic stress disorder, personality disorder, Tourette syndrome and autism.<sup>8</sup> They act by blocking dopaminergic (D2) receptors in the dopaminergic pathways of the brain. They also block serotonin (5-HT<sub>2A</sub>) receptors. They are divided into first generation (Typical) antipsychotics and second generation (Atypical) antipsychotics. Typical antipsychotics include: the Butyrophenones (Benperidol, Bromperidol, Droperidol, Haloperidol, Timiperone); the Diphenylbutylpiperidine (fluspirilene, Penfluridol, Pimozide), the Phenothiazines (Chlorpromazine, Fluphenazine, Levomepromazine, Perazine, Perphenazine, Prochlorperazine, Trifluoperazine); and the Thioxanthenes (Thiothixene). Atypical antipsychotics include; Amisulpride, Amoxapine, Aripiprazole, Asenapine, Cariprazine, Clozapine, Iloperidone, Lurasidone, Olanzapine, Paliperidone, Quetiapine, Risperidone, Sultopride, and Ziprasidone.

Cardiac adverse effects of antipsychotics include QT interval prolongation, and ventricular arrhythmias like Torsades de pointes.<sup>9</sup> The risk of SCD is similar in patients on both typical and atypical antipsychotics and the risk increases with increasing dose.<sup>7</sup> This risk is more in patients with an underlying cardiac abnormality.<sup>10</sup>

### CASE PRESENTATION

A 57 year old retired engineer, a black African male and a known hypertensive patient for greater than 10years but poorly controlled being managed as a case of hypertensive heart disease, who had a family history of psychotic illness and was also being managed by the psychiatrist for psychotic disorder (schizophrenia), but was referred to cardiac centre for blood pressure control and cardiovascular monitoring on account of recurrent palpitations, and chest pain. He was managed on out-patient care and was given an out-of hospital close follow-up with the assistance of his relatives.

Clinical examination showed an obese (BMI-38kg/m<sup>2</sup>) man with BP-170/100mmHg, displaced apex beat and first, second and third heart sounds.

Investigations revealed radiographic cardiomegaly and unfolded aorta, electrocardiographic findings of right bundle branch block, left anterior fascicular block and voltage criteria for left ventricular hypertrophy.

His antipsychotic medication included tabs haloperidol and chlorpromazine which were later changed to tabs risperidone while he still continued on his antihypertensive medication- tabs Amlodipine and Hydrochlorothiazide, lisinopril and low dose aspirin (75mg daily).

His clinical state of health was apparently stable and he was compliant with his medication when he was noticed to have suddenly died in his house with no tangible evidence of suicide. Autopsy yielded no significant cause of death apart from few, mild systemic atherosclerosis.

### DISCUSSION

Case reports and other studies on Antipsychotic – induced sudden cardiac death are available in literature.<sup>7,11,12</sup> This is noticed more in patients with underlying cardiac dysfunction.<sup>10</sup>

The index patient had electrocardiographic evidence of left ventricular hypertrophy, occasional arrhythmias and conduction abnormalities. He was also on three different antipsychotic medications with documented evidence in literature for causing sudden cardiac death. His cardiac condition together with combined antipsychotic medication may have precipitated the SCD episode.

Challenges encountered in managing a case as this in resource-poor societies include poor cardiovascular monitoring of patient's cardiac conditions using ECG and echocardiography due to patient's constraint- financial and psychosocial, poor inter-communication between the managing psychiatrists and the cardiologists managing the cardiac condition. Also infrequent and irregular hospital visits by the patient for clinical evaluation due also to financial constraints. These are regular challenges seen in multidisciplinary patient management in resource-poor societies in developing countries. Also being an out-of-hospital SCD, ECG could not be done to know the type of ventricular arrhythmia the patient may have likely died of.

### CONCLUSION

In patients with underlying cardiac dysfunction who are being managed for psychosis or other non-psychotic illnesses with antipsychotic medications, a detailed cardiovascular evaluation and serial monitor may help manage patient better. Also good inter-disciplinary communication on patient management will also improve level of patient care.

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