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Intravenous Haloperidol Induced Atrial Fibrillation: A Case Report

Authors
Dr Madhumita Preetam Rauth[1*], Dr Sanjiv S. Kale[2]
Psychiatry Dept, Dr. D. Y. Patil Medical College, Sect, 5 Nerul, Navi Mumbai, 400706
*Corresponding Author
Dr Madhumita Preetam Rauth
Postal Address: Bharati Hospital, Vandemataram Chowk, Tasgaon 416312, India
Phone No-7709653213, Email: *rimarauth@gmail.com*

Abstract
Antipsychotic drugs are known to cause adverse cardiovascular effects such as postural hypertension, tachycardia and arrhythmias. Haloperidol is one of the antipsychotic drugs and is having adverse cardiovascular effects. This case report highlights the cardiac risk associated with use of Haloperidol, particularly if used parenterally and in elderly.
Keywords: *Haloperidol, Atrial fibrillation, Antipsychotic Drug.*

Introduction

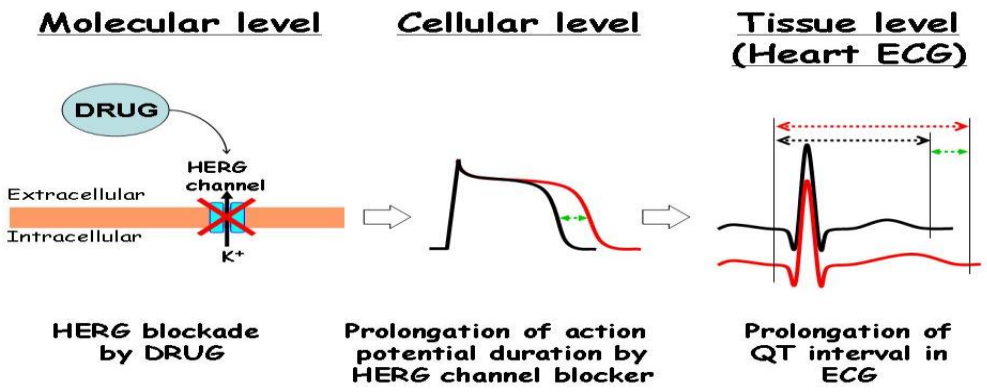
Haloperidol is a typical antipsychotic of the butyrophenone family. Long-term therapy is commonly used for psychotic disorders such as schizophrenia, senile psychosis or the manic phase of bipolar disorders. Physicians not dealing with psychiatric patients are more familiar with the short-term indications in acutely confused states including the relief of delusions, delirium and aggressive behaviour.

Although haloperidol appears to function by blocking dopaminergic neuro-transmission in the central nervous system, the precise mechanism for its therapeutic effects remains unknown.[(1)] It also has the potential to cause the extra pyramidal syndrome (EPS), which includes a group of movement disorders of dystonia, akathisia, tardive dyskinesia and parkinsonism.[(2)]

It's common cardiac side effects include hypotension, tachycardia, hypertension, cardiac arrhythmias and rarely, sudden cardiac death.

Atrial fibrillation is an abnormal heart rhythm, characterized by irregular rapid beating, leading to decreased peripheral blood flow.

Cardiac conduction defect such as ATRIAL FIBRILLATION is an unusual side effect of Haloperidol and is thought to occur due to inhibitory action of Haloperidol on the delayed rectifying potassium channel (I Kr) ("Funny Channel") (encoded by the HERG gene) - major pore forming subunit involving cardiac repolarization[(3)].



Cardiac Conduction defect due to Blockage of HERG Potassium Channel

Case Report

Sixty years old male patient was brought to the emergency department of our hospital with history of insidious onset of suspiciousness, fearfulness, muttering and gesticulating to self, psychomotor retardation, pacing around, reduced self care and decreased sleep, appetite of 4 days duration.

four days after onset, patient was taken to a private physician, where routine investigations including ECG were done which were within normal limits.

Patient was injected with 5 mg HALOPERIDOL INTRAVENOUSLY by the private physician and referred to our hospital the next day.

At the time of presentation, the patient's blood pressure was 140/80mmHg, pulse was 84 per minute and regular. ECG was within normal limits.

Patient was admitted for observation in the ward and was started on Haloperidol 5mg & Promethazine 50mg INTRAMUSCULARLY at night.

12 hours following admission patient started complaining of sweating, uneasiness and palpitations. On examination, pulse rate was 171 beats per minute & irregular and Blood Pressure was 60 mm Hg by pulse.

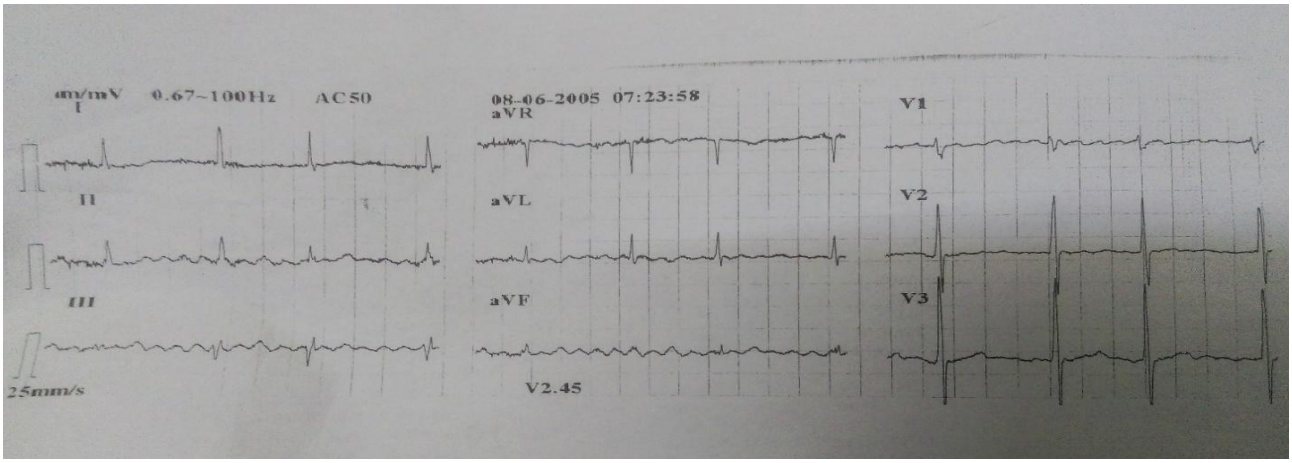
ECG revealed Atrial Fibrillation

Patient was shifted to ICU and started on Metoprolol 25 mg & Haloperidol was stopped.

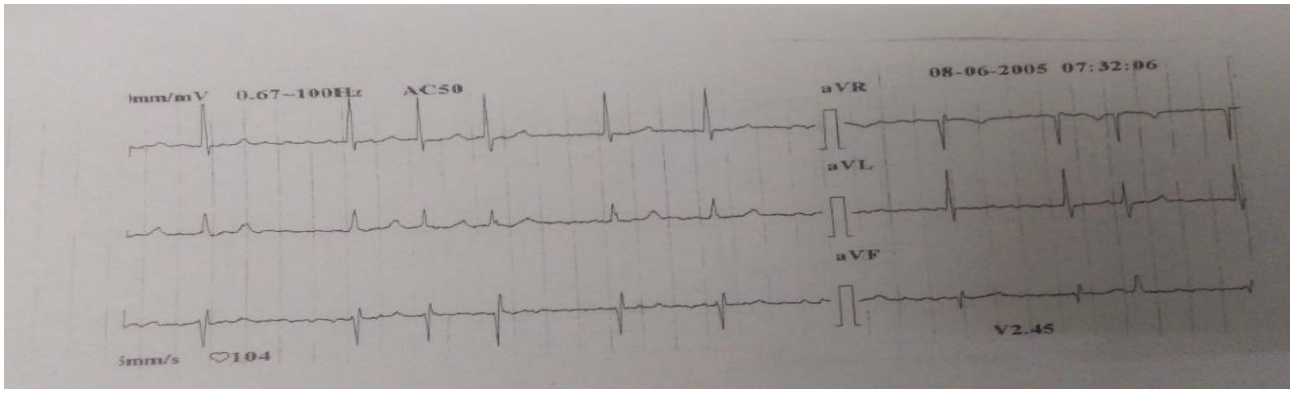
Routine investigations including 2D Echo and Serum Electrolytes were normal.

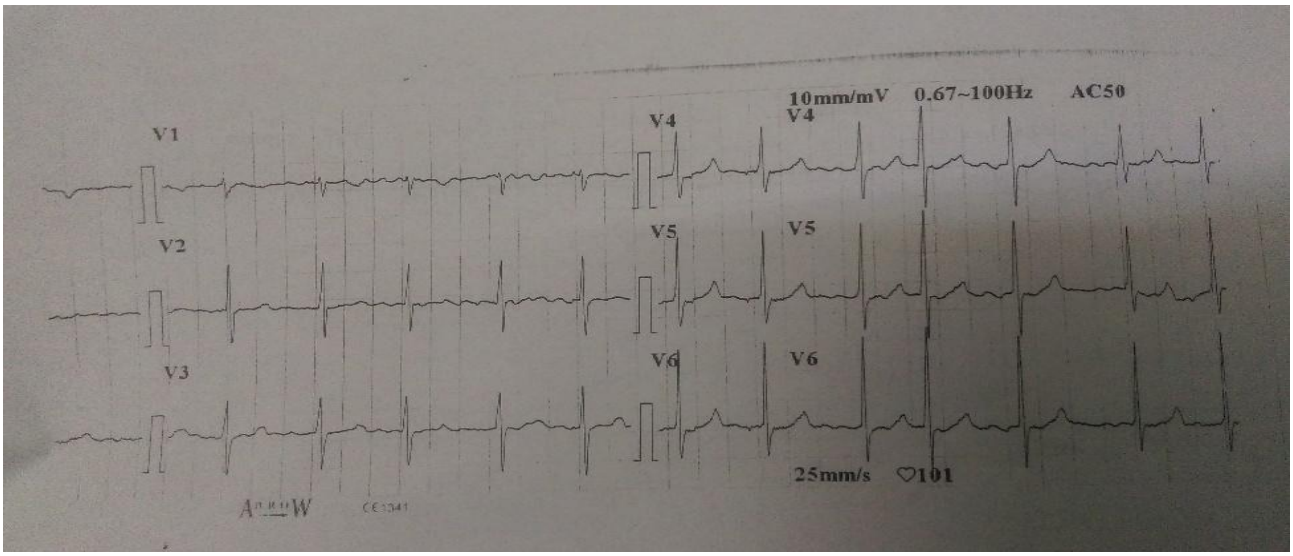
Atrial Fibrillation resolved within 6 days and patient was discharged in a stable condition on Olanzapine 5 mg & Metoprolol 25 mg and is currently maintained.

Atrial Fibrillation



Normal ECG after 6 Days





Discussion

Antipsychotic drugs are known to cause adverse cardiovascular effects such as postural hypertension, tachycardia and arrhythmias, which may occur via blocked of peripheral adrenergic and cholinergic receptors, as well as increase in sympathetic activity.[4]

As the elimination half-life of haloperidol is 17 to 18 hours,[5] it may exert prolonged effects.

There is a common perception that it controls agitation with virtually no major adverse cardiac, respiratory, renal or haematopoietic effects. However, numerous reports illustrate that serious side effects can occur in all of these systems.[6]

Case reports link antipsychotic drugs with sudden cardiac deaths, which is consistent with dose-related electrophysiologic effects [7]

It is also used in critically ill agitated and delirious patients who are unresponsive to high doses of narcotics and benzodiazepines.

This case report highlights the cardiac risk associated with use of Haloperidol, particularly if used parenterally and in elderly.

One must always be vigilant in using Antipsychotic medications in "at risk" individuals such as elderly.

Acknowledgement

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