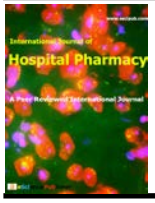
Case Report **IJHP 2017, 2:7**



International Journal of Hospital Pharmacy
(ISSN:2574-0318)

Selective Serotonin Reuptake Inhibitors Induced Serotonin Syndrome- A Case Report

Ananth kashyap*, Rashmi N G, Rakshith U R, Hanumanthachar Joshi

Smriti College of Pharmaceutical Education, Indore

ABSTRACT

Serotonin syndrome also known as serotonin toxicity is a potentially life threatening syndrome that is precipitated due to excess serotonin within CNS. It results in variety of mental, autonomic and neuromuscular changes which ranges in severity from mild to fatal. It is nearly always caused by drug interaction involving two or more serotonergic drugs atleast one which is SSRIs. This is a case of 35- year- old female patient, admitted to hospital with 2 episodes of seizures, fever, headache, depression and was put on sodium valproate, clonazepam+escitalopram, paracetamol, sertraline. The patient medical history reveals that she is a known case of major depression and syncopal attack and was on escitalopram oxolate from 1 year. After two days of therapy patient developed tremors, restlessness, muscle rigidity, shivering and was clonus. On examination, variation in vitals was noticed and diagnosed as serotonin syndrome by review of medication chart sertraline was stopped and lorazepam was administered and patient showed good response and felt better. Proper education and awarness about drugs, drug-drug interaction causing SS its accuracy of diagnosis that prevents morbitiy and mortality in patients prescribed with SSRIs is of utmost importance.

Key words: Serotonin syndrome, Selective serotonin reuptake inhibitors, Drug-drug interaction.

***Correspondence to Author:**
Ananth Kashyap.S (Pharm.D), Sarada Vilas College of Pharmacy, Mysuru-570004, Karnataka, INDIA.
Phone no: +91-8123011773
E-mail: ananthkashyap77 @gmail.com

How to cite this article:
Ananth kashyap, Rashmi N G, Rakshith U R, Hanumanthachar Joshi. Selective Serotonin Reuptake Inhibitors Induced Serotonin Syndrome –A Case Report. International Journal of Hospital Pharmacy, 2017,2:7.

eSciencePublisher
eSciPub LLC, Houston, TX USA.
Website: http://escipub.com/

INTRODUCTION

Serotonin syndrome(SS) also known as serotonin toxicity caused mainly by excess serotonin within CNS that leads to variety of mental, autonomic and neuromuscular changes which can range in severity from mild to fatal. Drugs, drug-drug interactions involving two or more serotonergic drugs atleast one which is SSRIs results in SS.[1] SSRI are 1st line drugs prescribed for major depression, panic disorders, bulimia, anorexia nervosa although they are associated with less toxicity than TCAs, they can precipitate the potentially lethal SS.[2] Misdiagnosis, considering precipitated signs and symptoms as general side effect of treatment and unawarness of syndrome has lead to less reporting of actual cases.[3] The average reported mortality rate of SS is 20-30%. Herewith we are reporting a case of SSRIs induced Serotonin syndrome.

CASE REPORT

A 35-year-old-female patient is presented to tertiary care hospital with complaints of 2 episodes of seizures, fever, headache, depression and burning sensation in forearm. Her past medical history reveals that she is known case of major depression and syncopal attack and was on regular medication escitalopram oxolate 20 mg OD since 1 year. Upon admission her vitals were stable and she was put on to following drugs: sodium valproate injection 1 gm in 100ml NS over 30 mins, clonazepam(0.5 mg)+escitalopram(10 mg) BD, paracetamol 500 mg BD, sertraline 50mg OD. By next day evening patient started complaining of generalised weakness, tremor, slowing of voluntary movement and hence levodopa(100 mg)+carbidopa(10 mg) OD, sodium valproate(333 mg)+valproic acid(145 mg) BD was substituted in place of INJ.sodium valproate , multivitamin+anti-oxidant syrup 10 ml BD was added to treatment and was advised to continue the same. In the night of day 3 patient complaints of shivering, restlessness and by morning of day 4 she developed tremors, muscle rigidity and on examination by duty medical officer tachycardia and clonus condition was reported. Later that day senior medical officer visited the patient and based on clinical manifestation by examining patient opined the possibility of sertonin syndrome and advised for medication chart review and it was found escitalopram and sertraline(SSRIs) was in mediaction chart which lead to serotonin toxicity and resulted in serotonin syndrome and he advised to immediately discontinue sertraline and administer lorazepam 2 mg SOS intravenously and then 1mg doses of lorazepam every 4 hours till tachycardia, clonus, tremor, muscle rigidity was reduced . By afternoon of day 5 symptoms of serotonin syndrome was subsided. On day 6 no fresh compliants were reported. On day 8 patient felt better and she was discharged.

DISCUSSION

Drugs causing SS are anti-depressants mainly SSRIs(fluoxetine, fluvoxamine, citalopram, escitalopram, sertraline, paroxetine) , SNRIs(Duloxetine, sibutramine, venlafaxine), RIMAs(Moclobemide), other drugs like lithium, opiates, tramadol, dextromethorphan and setrons. When two or more serotonergic drugs are used in conjunction, risk of SS is higher,but cases caused by a single serotonergic drug have also been reported. Drugs with direct or indirect serotonergic action stimulates $5HT_{1A}$ and $5HT_2$ receptors and precipitates SS.[4] In mild cases the predominant features are diaphoresis, shivering, tachycardia, mild hypertension, mydriasis, myoclonus, tremor and hyperreflexia. In moderate syndrome hyperthermia (40˚ c), mild agitation, clonus, pressure speech, hyperactive bowel sounds and horizontal ocular clonus is seen. In severe cases hyperthermia (>41˚ c), delirium, muscle rigidity and dramatic swings in blood pressure and pulse rate. Rapid development of onset symptoms is observed due to self-poisoning or after change in medication. After initial use of medication, change in dosing or ovedose, approximately 60% of patient develop above clinical manifestation within 6 to 8 hours.[3,5]

In this case patient was put on escitalopram and sertraline which ended with clinical manifestation of SS. Inhibition of CYP450 metabolic pathway by the concurrent use of medication that interact with serotonergic drugs results in SS. Caution should be taken when a patient taking SSRIs in addition to CYP2D6 or CYP3A4 inhibitors like valproic acid, venlafaxin. Since there is no objective diagnostic test, diagnosis of SS remains challenging and many times leads to misdiagnosis.[6] Similar clinical presentation of SS and neuroleptic malignant syndrome and polypharmacy makes the diagnosis of 2 syndrome problemat-

ic.[7] Management includes withdrawl of causative agents and supportive measures such as hemodynamic stabilization, sedation, temperature control, hydration and monitoring for complications.[8]

Drugs like benzodiazepines(diazepam, lorazepam), neuroleptics(chlorpromazine 50-100 mg), anti-serotonergics(cyproheptadine-12 mg) to be used. Serious myoclonus and hyperreflexia and neurological symptoms, are sometimes treated with benzodiazepines. External cooling, hydration and benzodiazepines is considered for aggressive management of hyperthermia. 5-HT_{2A} inhibitor and antihistamine drug cryptoheptadine is drug of choice in moderate cases and is recommended in severe cases.[9,10] In this case lorazepam was administered and clinical manifestation of SS was subsided. The risk benefit assessment carried by pharmacist is very essential in this type of cases. Awarness of SS and education about its effects and drug use is very most essential.

CONCLUSION

Although SSRIs is being extensively used in treating major depression, it should be noted that it have some severe drug-drug-interactions with wide variety of agents and possible outcome leads to excess serotonin in CNS and results in Serotonin syndrome. Physicians and clinical pharmacists should be aware of possibility of this life threatening syndrome which has no way to predict who will develop SS. The best way to prevent this is discontinue any serotonergic agent before starting another . The patient recovered from serotonin syndrome by early diagnosis and symptomatic management.

ABBREVIATION USED

SS: Serotonin Syndrome

TCAs: Tricyclic Antidepressants

SSRIs: Selective Serotonin Reuptake Inhibitors

SNRIs: Selective Norepinephrine Reuptake Inhibitors

RIMAs: Reversible inhibitors of MAO-A

ACKNOWLEDGEMENT

Sincere Thanks to Department of Pharmacy practice, Principal of Sarada vilas college of pharmacy and also administration of K.R hospital, Mysuru, Karnataka

CONFLICT OF INTEREST

No conflicts of interest

REFERENCES

1.Michael Hall, Nick Buckley. Serotonin Syndrome. Australian prescriber. 2003;26(3):19.

2.Selective Serotonin Reuptake Inhibitor Toxicity. Medscape.http://emedicine.medscape.com/article/821737-overview(Accessed on 3 July 2017).

3.Jacqueline Volpi-Abadie, Adam M.Kaye, Alan David Kaye. Serotonin Syndrome. The Ochsner Journal. 2013;13(4):533-540.

4.Ursula Werneke, Fariba Jamshidi, David M.Taylor, Michael Ott. Conundrums in neurology: diagnosing serotonin syndrome-a meta-analysis of cases. BMC Neurology. 2016;16:97.

5.Edward W.Boyer, Michael Shannon. The Serotonin Syndrome. The New England Journal of Medicine. 2005;352:1112-20.

6.Charles H.Brown. Drug-Induced Serotonin Syndrome. U.S.Pharmacist. 2010;35(11):16-21.

7.Perry PJ, Wilborn CA. Serotonin syndrome vs neuroleptic malignant syndrome: a contrast of causes, diagnoses and management. Annals of Clinical Psychiatry. 2012;24(2):155-62.

8.Bettina C.Prator. Serotonin Syndrome. The Journal of Neuroscience Nursing. 2006;38(2):102-105.

9.Philippe Birmes, Dominique Coppin, Laurent Schmitt, Dominique Lauque. Serotonin syndrome:a brief review. Canadian Medical Association Journal. 2003;168:11.

10.Christopher Frank. Recognition and treatment of serotonin syndrome. Canadian Family Physician. 2008;54(7):988-992.