

SSRI Induced Sleep Bruxism and Jaw Muscle Dystonia- Management with Low Dose Quetiapine Along with Occlusal Guards (D9944, D9945)- Two Case Reports

Nanda Kishore Ghoshal^{1*} and Susanchita Singh²

¹Consultant Prosthodontist and Dental Surgeon, Kolkata, India

²Practicing Dental Surgeon, Kolkata, India

*Corresponding author

Nanda Kishore Ghoshal, Consultant Prosthodontist and Dental Surgeon, Kolkata, India.

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ABSTRACT

Background: Long term use of SSRIs (selective serotonin re uptake inhibitors) sometimes induces a problem called nocturnal or sleep bruxism which is nothing but uncoordinated jaw muscle movements which leads to grinding and clenching of teeth. The undesired effect of SSRIs produces a muscle stiffness, jaw and neck muscle tenderness, continuous toothache, hypersensitivity, tooth fracture and TMJ pain. Different treatment modalities are there to manage this kind of problem without hampering the psychiatric prognosis of the patient. Here two cases of SSRI induced sleep bruxism along with successful managements are discussed which will throw some light to the potential treatment approaches of such rare disorders.

Keywords: Bruxism, Mandibular Dystonia, Quetiapine, Serotonin Reuptake Inhibitors (SSRIs), Occlusal Guard

Introduction

Bruxism although described as a mechanical dental problem has more recently been recognized as a form of abnormal uncoordinated muscle movements. Bruxism is described as a repetitive jaw-muscle activity characterized by clenching or grinding of the teeth and/or by bracing or thrusting of the mandible. Sleep bruxism is no longer considered as parasomnia nor the etiology is believed to be based on purely mechanical factors or psychological stress Issues. It is now regarded to be primarily a sleep-related movement disorder [1]. Nocturnal bruxism is associated with both grinding and clenching of the teeth and generates tremendous forces that produce audible grinding sounds. In general, each episode of nocturnal bruxism is brief, and during a night of sleep, an average of 42 seconds of bruxing occurs. Bruxism carries significant morbidity which consists of clenching or grinding of teeth, gradual decrease in vertical dimension of occlusion (VDO), fracture of teeth, stiffness, jaw pain which radiates to temporomandibular joints, temporal region, ear and neck. There are some medications which are thought to be associated with triggering the bruxism [2].

1. SSRIs and SNRIs
2. methamphetamine,
3. methylenedioxymethamphetamine,
4. nicotine
5. amphetamines,

6. anticonvulsants,
7. aripiprazole,
8. atomoxetine,
9. duloxetine,
10. flecainide,
11. ketotifen
12. heroin,
13. piperazine

SSRIs (selective serotonin re uptake inhibitors) are one of the widely used type of antidepressant generally prescribed to treat persistent or chronic severe type of cases. They increase the level of serotonin in brain which is one of chemical messengers (Neurotransmitters) convey signals between brain nerve cells. SSRI block the reuptake of serotonin into neurons which in turn increase the availability of serotonin to improve the transmission of messages between neurons. The Food and Drug Administration (FDA) has approved the SSRIs to combat depression [3].

1. Citalopram (Celexa)
2. Escitalopram (Lexapro)
3. Fluoxetine (Prozac)
4. Paroxetine (Paxil, Pexeva)
5. Sertraline (Zoloft)

Masticatory motor activity is controlled by dopaminergic neurons of the mesocortical tract. Dopamine inhibits spontaneous

movement, whereas serotonin inhibits dopaminergic transmission in this tract, and thus, releases the characteristic repetitive muscle contractions of bruxism. Bruxism associated with SSRI use more commonly happens in females and can affect both children and adults prescribed. Venlafaxine (Effexor), sertraline (Zoloft) and fluoxetine (Prozac) were the drugs that most commonly caused this side effect in the study data. The treatment approach of the situation is challenging which consists of pharmacological management, occlusal correction and splint therapy [4]. Here in the current case reports we will discuss the treatment modalities of two patients taking SSRIs came with the complain of grinding of teeth, TMJ pain which was used to radiate to temporal, cervical region and hypersensitivity of teeth.

Case 1:

43 year female patient came to the clinic with a complaint of frequent teeth grinding and clenching which led to jaw pain which used to radiate to TM joint and ear which usually intensified at the morning. She visited to department of psychiatry with the history of mood symptoms including low mood, anhedonia, insomnia, anxiety, loss of energy, decreased appetite. She was prescribed sertalin, started with a dose of 25 mg once daily and titrated gradually up to 100 mg over a 3 months' duration. She achieved complete remission from anxiety symptoms after one month but she developed sleep bruxism with severe jaw pain, muscle stiffness since 2 weeks after starting the 100 mg medication. She was sent to psychiatrist for dose modification. She was advised to continue 50 mg sertaline daily and gabapentin 300 was added to alleviate the muscle dystonia. She was asked to come for follow up after 2 weeks. In the next appointment, patient said that the symptoms were minimized but not completely resolved. The temporalis, digastric and medial pterygoid muscles were palpated and examined properly. Examination of mandibular movement revealed a normal mandibular opening (maximum opening 35 mm) and closing pattern without pain or noise. Mandibular lateral, protrusive, and retruded movements were also within the normal range. Slight pressure on the trigger points of respective muscles elicited exquisite tenderness (VAS Score 8-9). She was advised to continue the medication. Occlusal adjustments were done along with addition of a combination of chlorzoxazone and ibuprofen, which was advised to take twice daily in full stomach. She visited to dental opd after another 2 weeks with same complaint of existing muscle tenderness, clencing, pain in opening the jaw and chewing. Then Full arch soft occlusal night guards (ADA-D9945) thickness of 2 mm for both jaws were fabricated and she was advised to wear 8-10 hrs a day, specially during sleep. The combination of ibuprofen and chlorzoxazone was stopped and Chlorbenzaprime was prescribed which provided a partial relief but failed to remove the symptoms completely. Low dose quetiapine (25 mg/ day) was started then along with splint therapy. In the follow up after 2 weeks patient was quite well as palpation on the trigger points elicited slight pain (VAS Score 2-3). After another 3 weeks patient was completely relieved, jaw stiffness and symptoms of bruxism were eliminated.



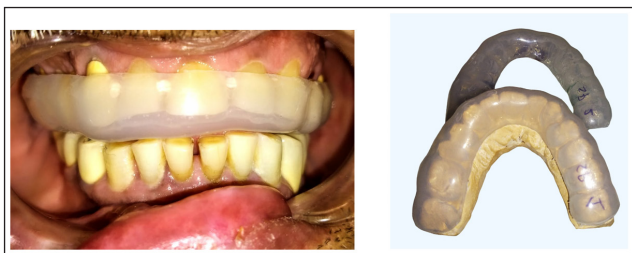
Case 1: Fabrication of full arch thermoplastic Soft splint (ADA-D9945)

Case 2:

58 year old male patient visited to the clinic with complain of involuntary jaw movements of grinding and clenching her teeth all day long and, as a result, he experienced severe tooth pain and headache. He gave the history of taking escitalopram 60 mg/ day for last 7 weeks prescribed by his psychiatrist for OCD (Obsessive-Compulsive disorder) instead of fluoxetine 40 mg/ day which had been taking for last 4 years. His examination through the Abnormal Involuntary Movement Scale (AIMS)-section for rating facial and oral movements- yielded a score of 7. He was sent to the consultant psychiatrist where the dose was modified as escitalopram 40 mg/ day for another 4 weeks. But there was no remission of his symptoms even after taking NSAIDs. Then he was advised to switch over to fluoxetine 60 mg/ day for next 2 weeks and chlorbenzaprime was added for muscle stiffness and tenderness. But he returned with the complaint of persisting jaw and neck pain. From the dept of psychiatry, aripiprazole 10 mg/day was added to his regimen and sent for dental evaluation. Examination of mandibular movement exhibited a normal mandibular opening (maximum opening 35 mm) and closing pattern without pain or noise. Multiple molar teeth were missing and replaced with multiple crown and bridges. Further intraoral study indicated no stable intercuspal position due to the involuntary tooth grinding. Extreme tenderness was found on palpation of temporalis and digastric muscles. Occlusal disarrangements were checked, all high points were removed and full arch acrylic occlusal hard splint D9944 (3mm) was given to him to use 8 hrs a day specially at the bedtime. Follow up after 1 week patient was relatively well but not completely relieved. The aripiprazole was stopped and 25 mg quetiapine was advised to take at night which was increased to 50 mg/ day after 1 week. After 4 weeks patient reported the complete relief and disappearance of pain, muscle stiffness and teeth clenching.



Case 2: Orthopantomogram showing 1. multiple molars are missing which are replaced by fixed prosthesis. 2. Severe attrition of anterior teeth due to diurnal and nocturnal continuous clenching and grinding creates significant occlusal discrepancy.



Case 2: Fabrication of full arch acrylic hard splint (ADA- D9944)

Discussion

SSRIs work by targeting the serotonin transporter (SERT), which leads to an increment of extracellular levels of serotonin, which is considered to be the basis of their mechanism of action. The common side effects of SSRIs are weight gain, sexual dysfunction, hyposalivation and xerostomia, gastrointestinal upset, drowsiness etc. They have also side effects on the central nervous system including tremor, dystonia, akathisia and bruxism [5]. Bruxism is an umbrella term encompassing the different motor activities of jaw muscles (temporalis, masseter, digastric, internal pterygoid) including clenching and grinding of teeth and thrusting of the mandible. Explanation behind the SSRI-induced bruxism is hypothesized that the serotonergic surge in mesocortical neurons arising from the ventral tegmental area causes a dopaminergic deficit, which causes a specific form of akathisia and akathisia-like movement of the jaw muscles, thereby leading to bruxism [6].

In different studies, Buspirone exhibited a beneficial effect in SSRI-induced sleep bruxism and muscle dystonia. Buspirone is an agonist of the 5-HT_{1A} receptor that increases dopaminergic neuron firing in the ventral tegmental area and increases the synaptic release of dopamine in the prefrontal cortex. These effects ameliorate drug-induced bruxism [7]. Buspirone can also ameliorate extrapyramidal side effects, such as akathisia and tardive dyskinesia, and this property may be an additional explanation for the bruxism-related effects of the drug. To treat bruxism and mandibular dystonia due to SSRI medication, Zandifar A et al used low-dose quetiapine (between 25 and 50 mg daily) and observed improvement in these side effects, which permitted the continuance of SSRI medication to treat psychiatric diseases. The effectiveness of low-dose quetiapine in managing bruxism was revealed in the study [8]. The use of clonazepam has been studied and was reported to improve bruxism as well as the sleep quality of patients. Clonazepam has anxiolytic, sleep-promoting, mood-stabilizing, and muscle relaxant effects, which makes it a good choice to treat primary and secondary bruxism [9,10]. Occlusal splints have been considered as the first-line of management for preventing dental grinding noise and tooth wear in case of sleep bruxism. These splints have different names such as occlusal bite guard, bruxism appliance, bite plate, night guard, occlusal device. They are classified into hard splints and soft splints. Hard splints are preferred over soft splints because soft splints are difficult to adjust than hard splints and hard splints are effective in reducing the bruxism activity. In the both case reports, low-dose quetiapine combined with

occlusal splint therapy successfully managed the SSRI-induced sleep bruxism and related painful episodes of the patients. The use of combination therapy not only minimized the muscle dystonia related to nocturnal bruxism but also permitted the continuance of SSRI medication to treat psychiatric diseases.

Conclusion

Psychoanalysis, hypnosis, meditation, sleep, hygiene measures with relaxation techniques and self-monitoring have been considered for the treatment of bruxism. The treatment of sleep bruxism usually begins with counselling of the patient with respect to sleep hygiene. Different medications along with occlusal correction, night guard, psychotherapy are combined to combat the SSRI-induced problem, which is a dual challenge to provide relief and to avoid worsening of the psychiatric status of the patient.

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