

Dental implications of tardive dyskinesia: a concise review

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Abstract

Background: The extent of psychiatric disorders encountered in dentistry is less well documented although the possibility of a hidden psychiatric morbidity in dentistry exists. Unfortunately, the literature regarding the dental implications of movement disorders is still scarce. This concise review describes the dental implications of tardive dyskinesia (TD).

Aims and objectives: The aims of this treatise are to give a short account of TD, discuss the orofacial manifestations of TD, and review the significance of TD to both the dentist and patient during dental procedures.

Materials and methods: The potential cases of TD with dental manifestations were reviewed in the text and published articles.

Results: From the various reports, the authors recognise that pain may be a presenting symptom of TD as a result of chronic trauma between the tongue and other oral structures and/or dentures, and the denture bearing tissues during the orofacial dyskinetic movements of TD. Pain is not usually a presenting complaint or symptom of TD and in many mild cases of TD. In some cases of TD, difficulty in wearing dentures can result from the persistent chewing movements of the mouth and jaw, and the repetitive flicking actions of the tongue. It is found difficult to get a good impression of the denture bearing tissues in patients with TD (when the orofacial region is involved) on the first attempt. TD not only makes the use of removable oral prosthesis difficult, it also makes communication and eating a chore. Simple dental procedures can prove to be difficult for the dental surgeon. The authors' feel that routine procedure involved in restorative dentistry may prove to be a challenge to the clinician when orofacial TD is present. **Conclusion:** It was concluded that TD may have profound dental implications. Referral to the appropriate clinician for assessment and possibly control of this disorder is indicated.

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Introduction

Tardive dyskinesia (TD) is an involuntary movement disorder most commonly occurs in patients with psychiatric conditions who are treated with antipsychotic medications for many years. TD probably occurs more frequently with typical antipsychotic than atypical antipsychotics.[1-3] Some common dyskinesias, viz., Gilles de la Tourette's syndrome, Huntington's disease, idiopathic torsion dystonia, oral dyskinesias, and Parkinson's disease may have profound dental implications.[4]

Since the first case of TD in year 1964 it has always been a matter of concern for patients on neuroleptic medication. [5] Its mechanism is poorly understood. The most compelling line of evidence suggests that TD may result primarily from neuroleptic-induced dopamine supersensitivity in the nigrostriatal pathway, with the D2 dopamine receptor being most affected. Neuroleptics act primarily on this dopamine system, and older neuroleptics, which have greater affinity for the D2 binding site, are associated with high risk for TD.[1] The D2 hypersensitivity hypothesis is also supported by evidence of a dose-response relationship, withdrawal effects, studies on D2 agonists and antagonists, animal stud-

ies, and genetic polymorphism research.[6]

Prevalence of TD

Studies of adult and elderly subjects have shown a greater incidence of TD among patients who were administered conventional antipsychotic drugs than those given atypical antipsychotic drugs.[7-9] Fifty-six prevalence surveys of TD in neuroleptic-treated patients are reviewed, yielding an average prevalence of 20%.[10] One study reported that within the first four years of using antipsychotic medications, 18.5 percent of young adults develop symptoms. Furthermore, 31 percent of those over 55 years of age develop TD symptoms in the same time frame.[11] Other estimates suggest that with each year of neuroleptic use, five percent of the patients will show signs of TD, i.e., five percent after one year, ten percent after two years, 15% after three years with no clear upper limit.[12] Eventually, according to these estimates, if on the drugs long enough, the majority of patients will develop the disorder.[13]

Risk factor associated with TD

The incidence of TD varies with, the type of neuroleptic

(e.g., haloperidol more often than perphenazine);[2] daily dose and duration of treatment (the higher the daily dose and the longer the duration of treatment, the higher the risk);[10] change/cessation of chronic treatment (especially intermittent treatment);[7,8] concomitant anticholinergic treatment in elderly (over 50);[10] female;[14,15] history of organic brain disease (e.g., dementia, learning disability, epilepsy);[1] history of previous drug-induced akathisia/parkinsonism/dystonias;[1] concomitant use of predisposing drugs (e.g., lithium, antidepressants, stimulants);[1,10] hyperinsulinaemia and hyperglycaemia associated with insulin resistance.[1, 11]

Clinical feature of TD affecting the orofacial region

In patients of TD perioral movements are the most common (e.g., tongue, lips, jaw), hence the alternative terms oral-lingual; orofacial; oro-bucco-facial; and buccal-lingual-masticatory dyskinesia are in use.

In the orofacial region, TD manifest as a repetitive pattern of chewing movements of the facial and masticatory muscles, occasionally with smacking open of the mouth, protrusion of the tongue (known as fly-catcher tongue), lip pursing, sucking movements and puffing of cheeks.[15-17] These rhythmical movements of the lips, side-to-side shifts of the chin and flicking of the tongue present the classical "bucco-lingual-facial" dyskinesic movements of TD.[18] In TD the orofacial region is usually the first site of presentation and can look like a form of mannerism, according to McSwiggan.[18] TD does not necessarily involve the limbs, trunk, neck and orofacial region all at the same time, however atypical presentation is reported.[5] Of the different anatomical areas involved in TD, the mouth is the most commonly affected region.[16,19]

Oral movement behaviour mimicking TD can also occur in patients with ill-fitting dentures. What has been termed 'edentulous orodyskinesia (ED)' is a condition that can easily be confused with medication induced dyskinesia.[20] Movements are worse when under stress.[20] In terms of the movement itself, ED was limited to the oral region and appeared to spare the tongue when the mouth was open. It also was less severe in clinical presentation.[20]

Dental implication

Many side-effects of psychotropic medications are of significance to the dentist during dental procedures. Pain is not usually a presenting complaint or symptoms of TD and in many mild cases of TD, the patients are not even aware of it until altered by observers.[17,21] However, orofacial pain can result from chronic trauma between denture bearing mucosa and denture which occurs during the repetitive abnormal movements of the mouth and tongue when TD involves the orofacial region. Denture traumatising denture bearing tissues and the tongue moving repetitively against other oral structures can cause orofacial pain in TD.[17]

Complaints of pain involving the tongue (due to lingual dyskinesia) rubbing against teeth and palate have also been reported.[22,23] We concluded that this pain is probably from trauma imposed on the tongue during the repetitive flicking movements of the tongue over other surfaces which can strip off the top most layer of oral epithelium on the

tongue. The movement can interfere with speech and eating.

In some cases of TD, difficulty in wearing dentures can result from the persistent chewing movements of the mouth and jaw, and the repetitive flicking actions of the tongue. [15,24,25] It is found difficult to get a good impression of the denture bearing tissues in patients with TD (when the orofacial region is involved) on the first attempt.[24,25]

Routine procedure involved in restorative dentistry may prove to be a challenge to the clinician when orofacial TD is present. Cases of severe degenerative changes of the temporomandibular joint secondary to the effects of TD have been reported.[26] Lingual-facial-buccal dyskinesias which sometimes arise spontaneously in the elderly [10, 27] and the chorea-like movements in Sydenham's and Huntington's chorea may sometimes be mistaken for TD.[16,17]

From the various reports above, the authors' recognise that pain may be a presenting symptom of TD as a result of chronic trauma between the tongue and other oral structures and/or dentures, and the denture bearing tissues during the orofacial dyskinesic movements of TD. We also feel that routine procedure involved in restorative dentistry may prove to be challenge to the clinician when orofacial TD is present. TD not only makes the use of removable oral prosthesis difficult, it also makes communication and eating a chore. Simple dental procedures can prove to be difficult for the dental surgeon. Extractions and surgical removal of teeth when indicated may even have to be carried out under general anaesthesia.

Conclusion

The dental implications of the TD have been recognised. Dentures traumatising denture bearing tissues and the tongue moving repetitively against other oral structure can cause orofacial pain in TD. The practicing dentist needs to be able to differentiate TD from orodyskinesia related to inadequate dentures and, in addition, should be able to identify which medications cause TD and know how to manage the dental needs of patients with these conditions, as he may be the first clinician to come across this movement disorder.

Further reading

Sachan A, Chaturvedi TP, Adit. Body dysmorphic disorder: a new concern for dentists. *Dysphrenia*. 2012;3:134-6.

References

1. Sadock BJ, Sadock VA. Kaplan & Sadock's synopsis of psychiatry: behavioral sciences/clinical psychiatry. 10th ed. Philadelphia: Lippincott Williams & Wilkins; 2007.
2. Tollefson GD, Beasley CM Jr, Tamura RN, Tran PV, Potvin JH. Blind, controlled, long-term study of the comparative incidence of treatment-emergent tardive dyskinesia with olanzapine or haloperidol. *Am J Psychiatry*. 1997;154:1248-54.
3. Beasley CM, Dellva MA, Tamura RN, Morgenstern H, Glazer WM, Ferguson K, et al. Randomised double-blind comparison of the incidence of tardive dyskinesia in patients with schizophrenia during long-term treatment with olanzapine or haloperidol. *Br J Psychiatry*. 1999;174:23-30.
4. Lobbezoo F, Naeije M. Dental implications of some common movement disorders: a concise review. *Arch Oral Biol*.

2007;52:395-8.

5. Shanker G, Yadav JS, Tripathi MN, Singh K. A case of atypical tardive dyskinesia complicated with diabetes. *Indian J Psychosoc.* 2011;1:63-5.
6. Hoerger M. The primacy of neuroleptic-induced D2 receptor hypersensitivity in tardive dyskinesia. *Psychiatry Online.* 2007;13:18-26.
7. Kane JM. Tardive dyskinesia rates with atypical antipsychotics in adults: prevalence and incidence. *J Clin Psychiatry.* 2004;65 Suppl 9:16-20.
8. Correll CU, Leucht S, Kane JM. Lower risk for tardive dyskinesia associated with second-generation antipsychotics: a systematic review of 1-year studies. *Am J Psychiatry.* 2004;161:414-25.
9. Tenback DE, van Harten PN, Slooff CJ, Belger MA, van Os J; SOHO Study Group. Effects of antipsychotic treatment on tardive dyskinesia: a 6-month evaluation of patients from the European Schizophrenia Outpatient Health Outcomes (SOHO) Study. *J Clin Psychiatry.* 2005;66:1130-3.
10. Kane JM, Smith JM. Tardive dyskinesia: prevalence and risk factors, 1959 to 1979. *Arch Gen Psychiatry.* 1982;39:473-81.
11. Saltz BL, Woerner MG, Kane JM, Lieberman JA, Alvir JM, Bergmann KJ, et al. Prospective study of tardive dyskinesia incidence in the elderly. *JAMA.* 1991;266:2402-6.
12. Jeste DV, Caligiuri MP. Tardive dyskinesia. *Schizophr Bull.* 1993;19:303-15.
13. Whitaker R. *Mad in America: bad science, bad medicine, and the enduring mistreatment of the mentally ill.* Cambridge: Perseus; 2002.
14. Jeste DV, Wyatt RJ. Changing epidemiology of tardive dyskinesia: an overview. *Am J Psychiatry.* 1981;138:297-309.
15. Brightman VJ. Tremors and other abnormal involuntary jaw movements. In: Rose LF, Kaye D, editors. *Internal medicine for dentistry.* St. Louis, Missouri: CV Mosby; 1983. p. 870-1.
16. Fahn S. The tardive dyskinesias. In: Mathews WB, Glaser GH, editors. *Recent advances in clinical neurology.* Edinburgh: Churchill Livingstone; 1984. p. 229-60.
17. Bassett A, Remick RA, Blasberg B. Tardive dyskinesia: an unrecognized cause of orofacial pain. *Oral Surg Oral Med Oral Pathol.* 1986;61:570-2.
18. Yee MF. Dental implications for the patients with mental illness. A treatise submitted for the degree of master of dental surgery. Australia: Sydney University; 1991.
19. Scott J, Humphreys M. Psychiatric aspects of dentistry. I. *Br Dent J.* 1987;163:81-4, 86-7.
20. Blanchet PJ, Rompré PH, Lavigne GJ, Lamarche C. Oral dyskinesia: a clinical overview. *Int J Prosthodont.* 2005;18:10-9.
21. Paulson GW. Tardive dyskinesia. *Annu Rev Med.* 1975;26:75-81.
22. Evans JH. Persistent oral dyskinesia in treatment with phenothiazine derivatives. *Lancet.* 1965;1:458-60.
23. Hierholzer RW. Tardive dyskinesia with complaints of pain. *Am J Psychiatry.* 1989;146:802.
24. Langer A. Chemoppsychotherapy and its role in prosthodontic failures in elderly patients. *J Prosthet Dent.* 1984;52:14-9.
25. Felder RS, Millar SB, Henry RH. Oral manifestations of drug therapy. *Spec Care Dentist.* 1988;8:119-24.
26. Osborne TE, Grace EG, Schwartz MK. Severe degenerative changes of the temporomandibular joint secondary to the effects of tardive dyskinesia: a literature review and case report. *Cranio.* 1989;7:58-62.
27. D'Alessandro R, Benassi G, Cristina E, Gallassi R, Manzaroli D. The prevalence of lingual-facial-buccal dyskinesias in the elderly. *Neurology.* 1986;36:1350-1.