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Review

Dental implications of some common movement disorders: A concise review

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ABSTRACT

Movement disorders – or dyskinesias – are characterized by involuntary movements. Despite the major role for medical specialists in the diagnosis and treatment of dyskinesias, dentists are confronted with such disorders as well. Unfortunately, the literature regarding the dental implications of movement disorders is still scarce. This concise review describes the dental implications of some common dyskinesias, viz., Gilles de la Tourette's syndrome, Huntington's disease, idiopathic torsion dystonia, oral dyskinesias, and Parkinson's disease. It was concluded that these dyskinesias may have profound dental implications. Not only do generalized dyskinesias have focal manifestations in the orofacial region, but there are also dyskinesias that exclusively affect the orofacial area. The oral manifestations of dyskinesias are in part directly related to the disorder, and in part medicine-related. Dentists should be able to recognize the oral manifestations and, when properly trained, to manage them adequately. In most instances, a multidisciplinary approach upon referral is necessary, including the medical specialists involved. Unfortunately, the level of evidence of the selected papers was generally low. In our rapidly ageing population, it is a challenge for all of us to improve the quality of this emerging field, for the sake of this sometimes heavily infirmed category of patients.

1. Introduction

Patients who suffer from movement disorders – or dyskinesias – involuntarily move either too much or too little. The term 'dyskinesia' originates from the Greek language and means 'difficulty of moving'. Most dyskinesias are attributable to a dysfunction of the basal ganglia and related structures, and of the cerebellum. Dopamine-mediated neural circuits are frequently involved in the physiopathology of movement disorders.[1,2] Dyskinesias constitute a complex group of conditions that require the attention of highly skilled medical specialists, including neurologists and psychiatrists, for their diagnosis and treatment.[3] Despite the major role for medical specialists, dentists are confronted with dyskinesias as well. Firstly, dyskinesias can, at least in part, be located in the orofacial area.[4] Thereby, they can complicate 'regular' dental management. Secondly, dyskinesias that do not involve the oral or orofacial area can still be a complicating factor in the management of dental problems, e.g., due to difficulties in stabilizing the head. Unfortunately, literature regarding the dental implications of (oral/ orofacial) movement disorders is still scarce. The purpose of the present paper therefore was to provide a review of the available literature that deals with movement disorders in the dental office.

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2. Dyskinesias

This concise review will be confined to those conditions that are most frequently studied in relation to dentistry, viz. (in alphabetical order), Gilles de la Tourette's syndrome, Huntington's disease, idiopathic torsion dystonia, oral dyskinesias, and Parkinson's disease. Below, these conditions will be described briefly, along with their dental implications.

2.1. *Gilles de la Tourette's syndrome*

The main characteristics of Gilles de la Tourette's syndrome, a disorder that already begins in childhood or adolescence, are multiple uncoordinated movements, especially tics of the face, and voice utterances. The typical vocal tics can vary from words to entire phrases and when coprolalia (involuntary swearing) is present, they may sometimes have an embarrassing nature. A characterisic oral feature of Gilles de la Tourette's syndrome is self-mutilation, like intense tongue, lip and cheek biting.[5,6] In addition, the medications prescribed for the syndrome (e.g., haloperidol, pimozide, and clondine) may have oral side effects, like hyposalivation.[5]

A few case reports describe the contribution of the dentist to the management of the orofacial aspects of Gilles de la Tourette's syndrome. These case reports mainly describe the application of dental splints against self-mutilation.[7–10] In the dental management of patients with Gilles de la Tourette's syndrome, the dentist must be aware of the psychological status, medication regimen, and motor deficits that may influence the dental status and oral hygiene procedures. To that end, the patient's neurologist or psychiatrist should be consulted. In addition, it should be noted that the patient's condition may worsen due to the stress of the dental visit. Thus, stress should be minimized by creating a safe environment and dividing the dental procedures in small segments. In line with these recommendations, major focus should be put on preventive measures, so that extensive dental treatments can be avoided.[5] If extensive treatments are necessary after all, intravenous sedation with midazolam can be used.[11]

2.2. *Huntington's disease*

Huntington's disease is a progressive, autosomal-dominant disorder that is mainly characterized by choreatic ('dance-like') movements and dementia. It usually has its onset in the fourth or fifth decade of life, but younger individuals (even children under 10 years of age) may be affected as well.[12] In the orofacial area, grimacing, speech difficulties, and dysphagia can occur.[13,14]

Dental treatment of patients with Huntington's disease is hindered by involuntary mouth and jaw movements.[15,16] Nevertheless, timing and patience may allow a procedure without sedation.[17] However, sedation can not always be avoided, especially when extensive procedures are necessary. As an illustration, an implant-overdenture procedure was successfully carried out under general anaesthesia in a 51-year-old male Huntington's disease patient, yielding a clear improvement in the patient's chewing function.[18] Importantly, several cases are described in which suggestions are being given for safe anaesthetic procedures in the usually frail, elderly, uncooperative, and malnourished Huntington's disease patient.[19,20]

2.3. *Idiopathic torsion dystonia*

Idiopathic torsion dystonia is an autosomal-dominant disorder with a focal, segmental, or generalized distribution and is characterized by slow, involuntary turning and torsion movements of the neck, trunk, and/or limbs. Also, spasms of the facial, lingual, and masticatory muscles may be present. In that case, large oro-dental problems may be encountered, like difficulties in chewing and in wearing full dentures. Edentulous torsion dystonia patients may then benefit from implant-supported overdentures.[21]

Spasmodic torticollis, a non-orofacial, focal torsion dystonia of the neck, may render dental treatment difficult. Adequate sedation can then be achieved with intravenously administered midazolam.[22] Spasmodic torticollis itself is frequently managed with injections of botulinum toxin in the neck musculature. As rare oral side effects of this treatment, salivary stasis and dry mouth have been reported, which are possibly the consequences of paralysing the smooth muscles of the salivary ducts.[23] Dentists should be aware of this possibility.

2.4. *Oral dyskinesias*

Unlike most of the movement disorders in this review, which are mainly generalized conditions that may also affect the orofacial region or that may influence dental status or management without involving the muscles of the face and masticatory system, some focal dyskinesias exclusively affect the orofacial area. A detailed, clinical overview of this group of conditions can be found in Blanchet et al.[24] Oral dyskinesias can be divided into orofacial dyskinesias and oromandibular dystonias. In turn, both types of oral dyskinesias can be subdivided into three subtypes, viz., idiopathic, tardive and 'dental' disorders; the last two subtypes having an iatrogenic nature.

Orofacial dyskinesias consist of involuntary, mainly choreatic movements of the face, lip, tongue, and jaw. The idiopathic subtype of the disorder may be due to, for example, an underlying psychiatric disease or overdoses of dopamine medications.[24] Further, the chronic use of neuroleptica (antipsychotic drugs) may cause tardive diskinesia.[24] In addition, certain dental conditions, especially edentulousness, and dental procedures like an inadequate prosthesis have been suggested as possible causes for orofacial dyskinesias.[24] However, as for the 'dental' oromandibular dystonias (see below), valid conclusions regarding the existence of a 'dental' subtype of orofacial dyskinesias cannot be drawn due to the poor level of evidence (mainly case studies).

Oromandibular dystonias are characterized by excessive, involuntary and sustained muscle contractions of the lips, tongue, and jaw. Sporadically, idiopathic oromandibular dystonia occurs as an isolated disorder in adults. As a possible underlying cause for this disorder, a defective physiologic inhibitory control of the basal ganglia over the thalamus and brain stem has been suggested.[24] The tardive subtype of oromandibular dystonias is due to a chronic