PATIENTS' PRIORITIES AND ATTITUDES TOWARDS THEIR TEMPORO-MANDIBULAR DISORDERS

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Abstract
The diagnosis and appropriate management of temporo-mandibular disorders (TMDs) remains controversial. Current scientific evidence highlights the importance of psychosocial factors in sufferers and the reducing emphasis on occlusal or dental/prosthetic factors. This paper describes the findings of a survey of 211 patients reporting pain from their temporo-mandibular joint area and associated structures. This article offers busy primary dental care practitioners a cost effective questionnaire for obtaining relevant information from patients about the history of their condition and highlights what patients' hope to achieve through the management of their disorder. It also emphasises the importance of communicating effectively with patients and offers practical tips for the management of TMDs in primary care.

Introduction

In spite of decades of debate, discussion and dogma, the diagnosis and appropriate management of temporo-mandibular disorders (TMDs) remains highly contentious. Central to the problem that TMDs can pose for primary dental practitioners is that the term itself is poorly defined in the scientific literature and that its definitions have evolved over the last century.[1]

The American Association of Dental Research (AADR) TMD Policy Statement Revision describes temporo-mandibular disorders as encompassing:

"...a group of musculoskeletal and neuromuscular conditions that involve the temporo-mandibular joints, the masticatory muscles and all associated tissues. The signs and symptoms associated with these disorders are diverse and may include difficulties with chewing, speaking and other oro-facial functions".[2]

The World Health Organisation (WHO) also recognises that TMDs are separate conditions in their International Classification of Diseases and Related Health Problems (ICD-10). This classification recognises temporo-mandibular pain dysfunction syndrome, TMJ derangement, TMJ ligament strain and TMJ dislocation as different conditions affecting the same anatomical area.

Due to its complicated taxonomy, the epidemiological data are unclear about the prevalence and incidence of TMDs. The scientific evidence suggests that somewhere between 10% and 30% of the healthy adult population will be suffering current or recent symptoms of TMDs.[3,4] This is a significant range but fortunately the vast majority of reported symptoms appear to be too mild and/or infrequent to trigger a request for professional help. Indeed it has been estimated that 85% of suffers with signs and/or symptoms of TMD perceive that they have no treatment need.[5] The AADR TMD policy states that the differential diagnosis of these conditions and related oro-facial pains should be based on a thorough patient history and clinical examination in the first instance. It also recommends that other sophisticated TMJ investigations lack the requisite sensitivity and specificity to separate TMD sufferers from healthy patients. The vast majority of these electronic diagnostic devices, for example electromyography, have yet to be validated fully or scientifically and at present cannot be justified in the diagnosis of TMDs. [6]

Similarly, although several imaging modalities have been validated for their use in diagnosing TMDs their use is predominantly limited to the detection of intra-capsular pathology.[7] The authors generally support the growing consensus that routine radiographic examinations such as dental panoramic radiographs or CBCT are of limited value in patients who present with TMDs, especially if this is of myogenic origin. These patients often do not have intra-capsular TMJ pathology and even when such pathology is present it is unlikely to be detected using such radiographic imaging. The commonest joint pathology found in TMD suffers is related to the articular disc which is not visible with conventional radiography. If discal pathology is likely and requires further investigation then the authors recommend referral for Magnetic Resonance Imaging (MRI) and appropriate specialist reporting.

History taking for patients with TMDs

There are several recognised and scientifically validated systems for recording the history of TMDs. The most commonly used is the Research Diagnostic Criteria for TMDs (RDC-TMD) which allows for a thorough exploration of both the clinical and behavioural aspects of the conditions.[8] The RDC-TMD is used to provide epidemiological data for scientific research, but due to its complexity it is rarely appropriate for clinical use in primary dental care. For patients presenting with pain, or a history of pain, the authors recommend that a simplified pain history is obtained. Table 1 illustrates a commonly used structured questionnaire (SOCRATES) for obtaining a generic pain history.

An alternative history taking tool designed specifically for suspected TMD patients is included in the questionnaire below. Use of this written questionnaire avoids time consuming history taking, allowing the clinician to be focussed on the psycho social aspects of the disorders as much as the clinical aspects. It also allows early identification of how the patient wishes to be managed and potentially avoids unnecessary or inappropriate interventions. What is important in obtaining any form of patient history is not what precise structure is used but rather that there is some form of *structure* to the history taking. If the patient is not suffering pain, they may alternatively describe one of the following common symptoms:

- A "click" when opening and/or closing their jaws
- A reduction of their ability to open or close their jaws comfortably
- Deviation on opening and/or closing of the jaws

Heading	Question	Common answer(s)
Site	Where is the pain?	TMJ, muscles of mastication, one or both sides
Onset	When and how did the pain start?	More than 3 months ago, gradually
Character	What is the pain like e.g. sharp, dull, stabbing?	Dull, tenderness
Radiation	Does the pain spread anywhere?	Temple, ear, eye, one or both sides
Associations	Does anything else happen at the same time	Clicking of jaw joint, stiffness of jaw joint(s)
Timing intermittent	Does the pain follow any pattern?	Worse first thing in the morning,
Exacerbating/Relieving factors	Does anything make the pain better or worse?	Better: painkillers, relaxation, holidays Worse: stress, eating, yawning
Severity	How bad is the pain out of 10?	Variable

Table 1: A pain history for TMDs using the 'SOCRATES' acronym. The right hand column provides common answers to these questions

Bruxism and tooth clenching

For many patients, their TMD is associated with periods of parafunctional oral habits. The commonest of these is teeth clenching or grinding (bruxism), which can happen during sleep as well as when the patient is awake. The scientific evidence for a direct relationship between clenching/bruxism and TMDs, however, is still weak. Several studies have identified a positive correlation, but some of these studies are characterised by methodological difficulties in relation to the correct identification of the two phenomena and bias.[9]
Interestingly, the WHO recognises teeth grinding (bruxism) in its ICD-10 and describes it as a 'somatoform disorder' under the mental and behavioural disorders" sub-classification. It is classified by the WHO as being closely related to the following psychogenic conditions:

- Dysmenorrhoea – menstrual pain
- Dysphagia – difficulty swallowing
- Pruritus - itching
- Neck stiffness

Grinding of teeth and the above problems are described together as:

"…disorders of sensation, function and behaviour, not due to physical disorders, which are not mediated through the autonomic nervous system, which are limited to specific systems or parts of the body, and which are closely associated in time with stressful events or problems"

Thus, it is clear that the WHO define bruxism as a *psychogenic* condition and by inference not particularly amenable to correction through dental treatment.

However, many patients are not aware of, or will not admit to, any parafunctional habits that may be causing or contributing to their TMD, and will provide a negative history on questioning. They may, however, be aware of tiredness in their oro-facial musculature or some may describe an inability to locate their 'correct bite'. Clinical examination may also reveal signs which are not consistent with the absence of symptoms:

- Extraoral, eg. muscular hypertrophy, especially in the Temporalis and Masseter muscles
- Intraoral - soft tissue changes eg. a white line in the cheek opposite adjacent to the occlusal pain (linea alba), tongue scalloping or traumatic ulceration of the cheek or tongue
- Hard tissue changes, eg. attritional tooth surface loss, cracked teeth or cracked/worn restorations

It is noteworthy that these findings may be in addition to, or exclusive of clinical findings of pain and/or dysfunction.

It is also worth noting that, as many patients are completely unaware of their TMDs and/or parafunctional habits, the dentist is often the first individual to piece together the various clues and provide a diagnosis. These clues should be carefully noted as the sub-clinical features of TMDs as parafunctional habits often impact on the dental management of the patient. This may be as simple as providing advice for the patient, fabrication of a removable appliance of varying designs or the selection of an alternative material for a restoration. Alternatively, these diagnoses may have more far reaching implications such as whether to embark on, or avoid, complex restorative dental rehabilitation. Failure to obtain and document information relating to a patient's TMD and oral habits may leave the clinician vulnerable to a possible later medico-legal complaint.[10]

Trends in the management of TMDs

In the last two decades, there has been a paradigm shift in the management of TMDs.[11] Modern management of TMDs has become far more focused on the identification of psychosocial factors and the patient's opinions and attitudes towards their management.[12] It was previously believed by some that bruxism and TMDs could be cured by dental or surgical interventions alone, without the need to explore the complex relationship between these two separate entities and the sufferer's psychosocial or social circumstances.[13,14] This resulted in surgical procedures for the TMJ without recognition that myofacial and joint-related symptoms were often separate clinical entities. Similarly, earlier philosophies on dental management placed great emphasis on occlusal equilibration or extensive oral rehabilitation to provide the 'ideal' position of the mandibular condyles in the glenoid fossae, and this approach required significant irreversible treatment of the dentition. The authors' views are that if such destructive dental treatment is provided for a TMD patient who is later diagnosed to have a significant psychological component, the treating dentist could face a potential claim for negligence.[15]

A survey of patients reporting TMDs

Sadly, the scientific literature has been slow to reflect some of the modern management of TMDs. In addition, there is a dearth of reliable information in the UK on patients' subjective concerns, wishes or views on their temporo-mandibular pain or problem. The following section of this article seeks to help primary dental care clinicians by providing them with information on the demography of TMD patients as well as their likely priorities for the management of their condition. The authors recommend the use of the included history taking questionnaire as a practical, time saving tool for obtaining quantifiable evidence relating to their patients' reported symptoms and their specific treatment aims. This allows the management of TMDs to be based largely on the patient's own perceptions and priorities. The authors feel that this is a sensible pre-requisite for the successful modern management of TMDs in primary dental care. Table 2 describes the demographic data of 211 consecutive patients, mainly referred from general dental practitioners, who attended for a new patient consultation in the Department of Restorative Dentistry at Kings' College Hospital Dental Hospital, London between January 2008 and June 2009. This survey only included patients who agreed to complete a facial pain (FP) and hospital anxiety and depression (HAD) questionnaire and who were subsequently diagnosed with a TMD.

	Number	Percentage
Gender		
Female	165	78.2
Male	46	21.8
Marital status		
Unmarried	100	47.3
Married	72	34.1
Undisclosed	39	18.5
Education level		
Secondary up to 16	47	22.3
Secondary 18 or over	17	08.1
College/University	82	38.9
Undisclosed	65	30.8
Work status		
Unemployed	40	19.0
Employed	171	81.0

Table 2: A summary of the demographic data of the 211 patients who attended the Department of Restorative dentistry at King's College Hospital, London and were subsequently diagnosed with a TMD

Demographics

The patients ranged in age from 15 to 82 years with a mean of 39.2 years (SD 14.4). This broad range of ages in TMD sufferers is reported in several scientific studies, although subjective symptoms have been noted to reduce with age.[3-5,16] In agreement with previous studies of TMDs, a significant majority of the surveyed patients were female. [3-5,17,18] It was also interesting to note that the largest group of attending patients had entered higher education (38.9%). This was at variance with the patients who commonly attend the department, which is located in a deprived part of South London, UK. The majority of the patients diagnosed with a TMD were employed. The over-representation of patients with a higher socio-economic status attending for TMD diagnosis and management has been recognised for many years.[19]

Affected activities reported by patients

Table 3 identifies the activities that were most likely to be affected by pain from the TMD. The figures illustrate that the activities that were affected were those that were most likely to directly require function of the TMJ and its associated structures, ie. chewing, eating hard foods and yawning. Activities that required less TMJ movement or muscular activity were far less likely to cause pain.

	Frequency	Number	Percentage
Chewing	1	168	89.4
Eating hard foods	2	154	82.8
Yawning	3	149	81.9
Smiling/Laughing	4	62	39.2
Talking	5	59	35.8
Eating soft foods	6	56	34.8
Drinking	7	35	22.0
Exercising	8	25	16.9
Swallowing	9	24	16.3
Other	10	21	41.2

Table 3: A summary of the activities that were most frequently affected by pain from a TMD

Patient expressed desires for management

Table 4 illustrates one of the most interesting results of this survey. The most frequently desired outcome (65%) by these patients was just to 'understand their pain better'. In addition, about 50% of patients wanted to 'know that their pain was not serious' while 21% of patients wished to 'improve communication with their clinician'.

	Number	Percentage	Ranking
Understanding my pain problem more	137	65.0	1
Knowing pain is not serious	105	49.7	2
Able to eat with confidence	105	49.7	3
Returning or remaining at work	95	45.0	4
Reducing pain medication	62	29.4	5
Feel less self-conscious in public	57	27.0	6
Feeling less depressed	48	22.8	7
Improving communication with doctors about pain	65	20.8	8
Improving my ability to socialise	36	17.1	9
Being physically intimate with partner	31	14.7	10
Reduce tendency to overdo activities	26	12.3	11
Meeting others with similar pain	10	4.7	12

Table 4: A summary of the outcomes that patients identified as being 'very important' to them in their treatment for TMD

Discussion

Based on the AADR recommendations, scientific evidence and the results of this survey, the authors feel that the modern management of TMDs should begin with a detailed structured history of the patients' symptoms and parafunctional oral habits prior to examination for signs. An accurate medical history is an essential part of this, as sufferers are more likely to present with co-morbidities with overlapping symptoms with TMDs such as. fibromyalgia, chronic fatigue syndrome, tension headaches, etc.[20] The questionnaire included in this article allows for easy capture of this essential information and an early exploration of the patient's psychosocial background, as TMD patients are more likely to have suffered adverse life events, mood disorders, stress, anxiety and depression.[11,21,22] This information, including their social history, should include a detailed analysis of any precipitating factors and recent life events such as changes in the workplace, ill health in the family, financial worries, bereavement etc. It is the opinion of the authors that it is not only negative life events that predispose patients to suffer TMDs, but also apparently positive ones such as positive changes in the patient's career or

changes in their accommodation. It has long been recognised that all of these life events are predictors for future stress-related ill health.[23]

It is also beneficial to gauge the patient's desired outcomes at the time of the initial consultation. This allows individualisation of their management strategies and aids clinical decision-making with regard to the use of further imaging, fabrication of occlusal appliances of varying designs, or specialist referral. The majority of the patients in this survey focused their desires on gaining more knowledge about their diagnosis and prognosis, rather than receiving active treatment. This correlates well with increasing calls for the management of TMDs to move from a surgical/dental-based model to a physician-based model.[24] This approach allows clinicians to target their management on conservative strategies such as discussion of their disorder, explanation and reassurance, analgesic advice and/or occlusal appliance therapy (Table 5).

Read the questionnaire answers in advance of seeing the patient as background information
Listen empathetically
Provide a diagnosis of a TMD
Discuss pre-disposing factors to TMDs e.g. stress, depression, bruxism
Reassure the patient with regard to the benign and cyclical nature of the syndrome
Provide a written document in simple and appropriate language
Advise simple topical or oral NSAIDs
Advise application of warmth to the joint and/or musculature
Provide a full coverage splint if appropriate
Review the patient
Refer for further management if symptoms worsen or do not abate

Table 5: Key points in the conservative management of TMDs in primary dental care

Although the highest level of evidence for the efficacy of these conservative managements is not available, the authors of several scientific reviews conclude that due to their conservative and non-destructive nature, they should still be the mainstay of TMD management.[25-28] This paucity of evidence at the systematic review level is more likely to be a reflection of a lack of scientific rigour rather than evidence of ineffectiveness. There is, however, a significant lack of

high quality evidence relating to the invasive or speculative treatment of TMD with orthodontics, occlusal adjustment, arthrocentesis or hyaluronate injections. [29-32]

The authors recognise that it may be difficult for busy primary care clinicians to devote a large amount of time to obtaining and recording this delicate information by the chair side. It is because of this that we recommend that a questionnaire similar to the one that was used in this study is sent to the patient ahead of the appointment. It can be completed in writing by the patient/partner/translator at home and in their own time prior to the consultation and then discussed at the chair side. This allows written exploration of a range of issues relevant to TMD which some dentists may find difficult to record in history taking eg. questions about anxiety and depression. It also allows patients to feel that their problems are being taken seriously and that they are not being forced to disclose delicate information at the chair side without prior warning. Finally, it can be stored in the patient's records as an excellent signed and dated summary of the patient's signs, symptoms and desires for the management of their condition.

Conclusions

The AADR and WHO use the term temporo-mandibular disorder to describe a heterogeneous group of pathologies affecting the TMJ and/or its associated musculature. The aetio-pathogenesis and clinical manifestations of TMDs are complicated and multi-faceted. This is often, although not always, associated with parafunctional oral habits such as clenching or bruxism. Patients diagnosed with the condition are also more likely to have recognised co-morbidities, precipitating psychosocial factors and/or mood affective disorders. This paper reports on the demographic data, activities affected and treatment desires of 211 TMD patients surveyed in an inner city hospital dental department.

The commonest demographic characteristics were that patients were likely to be

- Female
- Employed
- Well educated

The patients' activities that were mainly affected were:

- Chewing
- Eating hard foods
- Yawning

The patients' main reasons for seeking care were:

- To gain more understanding of their pain problem
- To know that the pain was not serious
- To be able to eat again with confidence

A questionnaire is available from the authors (please email martin.kelleher@virgin.net) which provides a simple and cost-effective way of helping to record, diagnose and discuss TMDs. Hopefully this will help clinicians to adopt a more modern approach to the management of TMDs which involving effective communication as well as being conservative and adopting reversible strategies in the first instance.

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