Treatment Outcome of Myocentric Splint Therapy Aided by a Standardized Symptom List

Horst Kares
International College of Cranio-Mandibular Orthopedics, Anthology Vol. VII, 2005, 57-64.
www.dr-kares.de

Abstract

The goal of this study was to prove the effectiveness of myocentric splints on a range of symptoms suffered by CMD patients. The experiment involved the attempt to optimize the indication positioning and prognosis at the start of dental functional therapy. 62 women and 21 men between 20 and 65 years old were questioned from a list of symptoms at the time a myocentric splint was incorporated and 4 weeks thereafter. We were able to document significant improvements in headaches, joint cracking, facial pain, neck pain and shoulder pain. Symptoms such as ringing in the ears, dizziness and insomnia were improved in approximately 50% of the cases but snoring showed hardly any change.

The effects of civilization, especially stress-related illnesses, have steadily given rise to the occurrence of symptoms in the area of the mouth, face and head [8,17,26,28,32]. CMD symptoms are suspected in approximately 70% of the general population although they often remain undetected[4,9,13,14,15,16,39]. As a consequence, in our dental practices we are increasingly confronted with clinical pictures which were unknown in the past. A routine examination of all patients in dental practices has confirmed the frequency of the diagnosis, “Craniomandibular dysfunction”[15,16,45,46,47,58].

A variety of studies have shown that only 3% of men and 7% of women have CMD-related pain and seek treatment for it[15,16,25,62,64]. However, if one asks patients in the practice about their symptoms, such as headache or clicking in the jaw joint, and explains the interrelationships in the whole body, one finds that treatment is necessary, meaningful and also desired much more often.

For this reason, in the past 5 years in our practice we have asked all patients showing signs of a CMD to fill out a symptom list which contains not only the common CMD symptoms but also a variety of whole-body and psychosocial complaints[37,48,49,50,51,52,77] (Fig.1). This questionnaire can be conveniently completed in the waiting room and is used as a basis for a subsequent conversation about these problems.

In this retrospective patient study 83 patients with craniomandibular dysfunctions were questioned about the actual state of various symptoms. The initial interview was conducted when a myocentric splint was incorporated, the second interview four weeks later. The complaints examined were headache, clicking in the jaw joint, facial pain, tinnitus, dizziness, neck pain, shoulder pain, snoring and insomnia.

One of the goals of this study was to prove the effectiveness of myocentric splints for the treatment of nine symptoms in CMD patients. Another goal was to optimize the indication at the beginning of the functional therapy, in other words, to make it easier to diagnose the craniomandibular dysfunction. The third goal was to obtain a quick overview of the degree of severity, multimorbidity, chronification stage and prognosis of the illness. We believed this could provide considerable help in making a decision about bringing in other specialists.

Methods

Selection of the Patients

The symptom lists of 83 patients from a dental practice between 1996 and 2000 were retrospectively evaluated. They came into the office because of following symptoms: pain in head, neck, back, face, ears, temporomandibular joints and tinnitus, mouth burning, tmj-noises, instable occlusion, vertigo. The age of the 85 patients ranged between 20 and 65 (62 women and 21 men)[57]. 16 patients got already a splint (19%) and 67 came without it (81%). 56 of them (67%) were treated by other therapist (physiotherapy, massage, drugs, acupuncture, ostheopathy eg.) and 27 (33%) didn´t get any other therapy. Each patient routinely filled out the questionnaire when the myocentric splints was inserted and four weeks thereafter. Some of the reported complaints were simple in nature with few symptoms, others were highly dramatic and spread out in almost all areas.

List of the evaluated Symptoms

Nine symptoms were evaluated :

- facial pain
- clicking the jaw joint
- headache
- neck pain
- insomnia
- snoring
- shoulder pain
- dizziness
- tinnitus

Myocentric Splints

The splints were made for the lower jaw in most cases. The bite registration was carried out after approximately 45 minutes of T.E.N.S. therapy corresponding to myocentric criteria and under K-6 control[3,19,33,34,35,36,40,53,54,59,60,61,65,71]. Oral splints had been previously worn in some cases. In simple cases the patients were told to wear the splints only at night. For patients suffering from chronic pain conditions it was recommended that the splints should be worn at first 24 hours a day and only be removed for cleaning.

Support Therapy

There were usually around three weeks between the initial examination and consultation appointment, and the incorporation of the splints. This allowed enough time for educating the patients, which is one of the most important instruments in the CMD therapy[11,12,37,38]. Any ongoing support therapy was continued but no new therapy was initiated.

Results

Prevalence of the Symptoms (Fig. 2)

The first step was to determine the prevalence of the symptoms for the examined subjects. The distribution of the complaints for the patients undergoing treatment for a craniomandibular dysfunction was interesting. Neck pain was mentioned most often, in 77% of the cases (64 subjects), similar to reports by other authors[56,63]. Headache also turned up in 75% of the subjects[2,21,22,43,44,55,56,63] (62 patients). One might even claim that these two complaints represent the main symptoms. Shoulder pain was reported by 53 patients, or in 64% of the cases, and clicking in the jaw joint was in fourth place with 61% (51 subjects). Snoring was reported by 38 subjects representing 46% of the cases. This points to a relationship with the bite position, especially a lowering of the bite which automatically narrows the oral cavity. Tinnitus and dizziness were reported by 40% of the patients (33 cases each). Insomnia was reported relatively often by this group of patients (32 cases or 38%), but this is typical for chronic pain conditions[25]. Facial pain, one of the most important and often mentioned symptoms in connection with CMD, actually did not play a major role and was cited in only 31% of the cases (26 patients).
In those patients who already wore a splint and got a new myocentric orthosis, 57% were responders and 43% non-responders. When they came without splint into the office, 71% did respond and 29% didn´t. We can deduce from this that neuromuscular splint therapy can be a benefit for the patient, even if he got another splint therapy before.
If the patients got another therapy by other specialities, 71% were responder and 29% non-responder. Without co-therapy the outcome was decreased a little bit, 69% responder and 31% non-responder. This shows that the positive effects of a co-therapy in the treatment of TMD are important.

Changes in the Symptoms (Fig. 3)

We defined an improvement of the symptoms when the severity of the complaints was reduced by at least one level. Deterioration was not detected or only to a very small degree of 2-10%.
The symptom which responded best to the therapy with a myocentric orthosis was facial pain (73%). When induced by CMD, we can promise patients a very good prognosis. The headache, too,

appeared to be caused by muscular stress in most cases and also responds to neuromuscular therapy (tension headaches). We found improvement here in 71% of the cases after four weeks. The typical CMD symptom, clicking in the jaw joint, was only in third in the ranking at 69%. We observed a reduction in the symptoms in this category as well. Neck and shoulder pain also showed improvement in 61% and 58% of the cases, respectively. This enables us to conclude that a considerable portion of these complaints are related to the jaw and teeth. Insomnia improved in 56% of the cases, which appears to be highly beneficial for the healing process of chronic pain patients.
Dizziness also reacted relatively well with 54%. Tinnitus improved in only 45% of the cases. However, the shorter the tinnitus lasted, the higher the chances of success. The snoring symptom reacted to the oral splints in only 24% of the cases. The amount of the raised bite obviously plays an important role here. The higher the vertical position, the larger the mouth cavity and therefore the less the tongue is positioned dorsally. The frequency of obstructive apenia might also be reduced and the patients are therefore getting more restful sleep.

Conclusions

Most patients treated in our practices have considerably more complaints than they admit to at first. Symptoms such as facial, head and neck pain should be questioned in each new examination in order to diagnose possible CMD[5]. It is highly important to obtain a complete overview of the extent of physical and psychosocial feelings. In combination with other screening methods[18,29,30,31,76], this simple symptom list represents an effective tool for improving the diagnosis of CMD and obtaining an overview of the extent of the ailments. At the same time it also reveals the degree of chronification and facilitates the prognosis.

Since the etiology of the CMD can rarely be established and we are usually only able to determine risk factors, we need to focus more on the symptoms and base the treatment on them[6,7,25].

Chronic pain patients, regardless of the main ailment involved, usually show strong signs of CMD[24,41,42,16,27,69]. These patients can therefore only be successfully treated with the assistance of dentists. The negative input of the parafunctions, the bite position and the jaw joint affecting the organism and the psyche needs to be lessened or eliminated altogether to enable other therapies to be successful[10,73,74,75].

The chronic aspect of these illnesses is new for the dental practitioner. It is not possible in this case to eliminate the pain as quickly and effectively in familiar fashion. The practitioner not only needs to learn how to treat the patient with the most up-to-date methods, but also to accompany and guide the patient through their illness[1,23,67,68,66,70]. The treatment of chronic pain patients represents a paradigm change in dental therapy. We can no longer simply focus on causal therapy. We need to react to symptoms[16,67,68,72].

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