Short Communication

Clinical Effectiveness of Cognitive Behavior Therapy in the Management of TMD

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Purpose: This study aimed to investigate whether cognitive behavior therapy (CBT) was effective as a standard intervention for temporomandibular disorders (TMD). ***Materials and Methods:*** The subjects were 134 TMD outpatients with no history of treatment for TMD. They had pain persisting for 1 month or more and/or limited jaw movement. All patients underwent CBT. Symptom fluctuation was evaluated by a self-administered questionnaire. ***Results:*** Symptoms had disappeared and improved in 112 patients within 2 months. ***Conclusion:*** It was suggested that most TMD symptoms can be relieved only by CBT in less than 2 months without further intervention. *Int J Prosthodont 2006;19:31–33.*

Conservative treatments have been recommended as the initial intervention for temporomandibular disorders (TMD) because of the self-limiting nature of TMD. It is also known that the suffering of TMD patients is often derived from their cognitive errors or problems. Cognitive behavior therapy (CBT) is a conservative approach for the disease and relevant in order to establish the self-controlled and healthy status in TMD patients.[1] TMD patients often complain that their problem is in the temporomandibular joints, although the majority of their pain actually originates from masticatory muscles. This gap might partly contribute to their cognitive error.

The purpose of this study was to clinically evaluate the significance of CBT as a standard intervention in the management of TMD.

Materials and Methods

Of 354 consecutive TMD patients who underwent a first medical interview between April 2001 and March 2005, 134 (35 men and 99 women, mean age: 38.5 ± 16.7 years) were selected according to the following inclusion criteria: *(1)* a complaint of pain in the orofacial region persisting for more than 1 month and/or *(2)* a complaint of limited jaw function. The exclusion criteria were: *(1)* serious systemic disease that would potentially compromise the natural course of TMD, *(2)* history of orofacial surgery or any previous treatments for TMD, or *(3)* mental illness.

All patients underwent CBT during their first visit and 3 weeks after the first visit. An intensive narrative-based interview regarding their conditions was carried

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Table 1 Subjective Symptoms of 134 Patients

Material	n
TMJ pain	55
TMJ noise	11
Limitation of movement	14
TMJ pain and noise	10
TMJ pain and limitation	19
Noise and limitation	1
TMJ pain, noise, and limitation	2
Muscle pain	7
TMJ noise and muscle pain	1
Difficulty in chewing	8
Other	6

Table 2 Clincal Diagnoses of 134 Patients

Diagnosis	n
TMJ internal derangement	30
Chronic muscle pain	61
TMJ internal derangement and chronic muscle pain	43

Table 3 Intention to Treat Evaluation and the Effect of CBT on 134 Patients

Status	After 3 wk	After 2 mo
Disappeared	59 (44.0%)	89 (66.4%)
Improved	51 (38.1%)	23 (17.2%)
No change	5 (3.7%)	2 (1.5%)
Improved but need add'l tx	13 (9.7%)	n/a
No change; need add'l tx	6 (4.5%)	n/a
Improved after tx	n/a	6 (4.5%)
Disappeared after tx	n/a	12 (9.0%)
Total	134	132 (2)*

*Discontinued patient.

Table 4 Progress of Each Patient Group

	TMJ ID		CMP		TMJ ID/CMP	
Status	After 3 wk	After 2 mo	After 3 wk	After 2 mo	After 3 wk	After 2 mo
Disappeared	16 (53.3%)	25 (83.3%)	30 (49.2%)	43 (70.5%)	13 (30.2%)	21 (48.8%)
Improved	9 (30.0%)	1 (3.3%)	21 (34.4%)	9 (14.8%)	21 (48.8%)	13 (30.2%)
No change	1 (3.3%)	0 (0.0%)	1 (1.6%)	0 (0.0%)	3 (7.0%)	2 (4.7%)
Need add'l tx	4 (13.3%)	n/a	9 (14.8%)	8 (13.1%)	6 (14.0%)	n/a
Total	30	30	61	60 (1)	43	42 (1)*

TMJ ID = TMJ internal derangement; CMP = chronic muscle pain; TMJ/CMP = both conditions.
*Discontinued patient

out to reveal personality traits that may have contributed to the disease state of the patient. The aim of cognitive therapy was to encourage patients to think and act more rationally so as to be less influenced or disturbed by events, thoughts, memories, mental images, and bodily sensations. The behavior component consisted mainly of desensitization and behavior modification. For instance, patients were educated to discontinue parafunctional habits, especially during the daytime, to reduce muscular tension and pain.

Symptom fluctuation was evaluated 3 weeks and 2 months after the first medical interview by a self-administered questionnaire. Changes in symptoms were reported by patients as disappeared, improved, or no change. If another treatment modality such as splint therapy was thought to be appropriate at the final evaluation, it was added to the CBT regimen.

Results

Of 134 patients, 86 complained of pain in the temporomandibular joint (TMJ), while muscle pain was the complaint of only 8 patients (Table 1). In contrast, muscle pain was observed in 104 patients by clinical examination (Table 2). Japanese TMD patients seemingly complained that their problem was in the TMJs,

although the majority of their pain in fact originated from the masticatory muscles. This gap might partly contribute to their cognitive error.

Table 3 shows the effects of CBT. Three weeks after the first medical interview, following administration of CBT only, symptoms had disappeared in 59 patients and improved in 64 patients. Other additional treatments, such as splint therapy, nonsteroidal anti-inflammatories, or occlusal adjustment, were required in 19 patients, including 13 patients with improved symptoms. After 2 months, symptoms had disappeared in 89 patients and improved in 23 patients, again with CBT only. No patient reported worsened symptoms after 2 months.

By viewing the result according to subgroup (TMJ, muscle pain, and TMJ and muscle pain), the most significant effect of CBT was observed in the TMJ subgroup followed by the muscle pain and the TMJ + muscle pain subgroups (Table 4).

Conclusion

Of 134 TMD patients, symptoms had disappeared and improved in 112 patients (83.6%) within 2 months following treatment with CBT only. It was suggested that most subjective TMD symptoms can be relieved by CBT alone, with no need for additional treatment.

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References

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Literature Abstract

A prospective 3-year study of fixed bridges linking Astra Tech ST implants to natural teeth

Connecting teeth and osseointegrated implants in fixed reconstructions is not generally recommended because of differences in their response to loading. The aim of the present study was to assess the clinical and radiographic performance of the teeth and implants used to support 3-unit fixed partial dentures subjected to normal functional loads. Nineteen subjects (10 males, 9 females, age range 27 to 65 years) with an edentulous posterior free end saddle in either maxilla or mandible (Kennedy Class 2), and opposing natural teeth or a tooth-supported fixed bridge were treated and completed the 3-year trial. An Astra Tech ST implant (length: 9 mm (n = 2), 11 mm (n = 9) or 13 mm (n = 8); diameter: 4.5 mm) was placed immediately distal to the last tooth (6 cases) or leaving a single premolar sized space (13 cases). The distal tooth received a gold coping and the implant was restored with a customised Prepable abutment (Astra Tech Profile BiAbutment: diameter 5.5 or 7 mm). A fixed partial denture was placed linking the gold coping and implant abutment either with the pontic as a distal cantilever (n = 6, length 7 to 8 mm) or as a fixed-fixed design (n = 13, length 6 to 12 mm). Standardized radiographs and clinical records were taken at delivery of the prosthesis cemented with TempBond (baseline BL) and annually. Plaque scores at implant sites increased between BL and subsequent years ($P < .02$). Statistically significant increases in probing depth were observed at both abutment teeth and implants between baseline and subsequent years ($P < .001$). Marginal bone levels (mm) at the implant and tooth were stable between BL, 1-, 2-, and 3-year examinations (implant: BL 0.65 ± 0.42, 1 year 0.63 ± 0.47, 2 years 0.88 ± 0.55, 3 years 0.78 ± 0.64; tooth: BL 2.29 ± 0.82, 1 year 2.41 ± 0.8, 2 years 2.38 ± 1.02, 3 years 2.68 ± 0.86). No signs of the intrusion of the abutment teeth were detected. One case of abutment screw loosening occurred. Eight bridges required re-cementation with a permanent cement in place of the temporary cement. There were 8 subjects presenting with fractures/chips to the composite component of the bridges. The authors concluded that the 3-year results demonstrate fully functional successful restorations with no evidence of tooth intrusion and with stable bone levels at both teeth and implants.

Palmer RM, Howe LC, Palmer PJ. *Clin Oral Implants Res* 2005;16:302–307. **References**: 12. **Reprints**: Prof Richard M. Palmer, Department of Periodontology, Floor 21, Guy's Hospital Tower, London Bridge, London SE1 9 RT, UK. Fax: (44)207-188 4940. E-mail: Richard.m.palmer@kcl.ac.uk—*Tee-Khin Neo, Singapore*