Treatment of phantom bite syndrome with milnacipran – a case series

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Abstract: Phantom bite syndrome is characterized by an uncomfortable sensation mainly affecting corrected dentition in which no abnormality is clinically detectable. Despite repeated failures of dental surgery, sufferers persist in seeking bite correction from a succession of dentists. The etiology–pathogenesis of phantom bite is unknown but some consider the syndrome to be a psychosomatic disorder. Seven patients with this syndrome were treated with the serotonin and norepinephrine reuptake inhibitor milnacipran for 4 weeks. One patient withdrew after 2 weeks because he was feeling "well". At the end of the study, 5 of the 6 patients completing the study reported significant improvements, with a mean decrease in occlusal discomfort of 55.3%, as indicated by a visual analogue scale. This result appeared to be independent of any antidepressant effect. Only minor and transient side-effects were observed. It is suggested that milnacipran may be a helpful treatment for phantom bite but this needs to be confirmed by further and longer term studies.

Keywords: phantom bite syndrome, occlusal discomfort milnacipran oral psychosomatic disorders

Introduction

There is a subgroup of patients with temporomandibular disorder who nomadically pass from one dentist to another seeking "bite correction". Their occlusal discomfort is characterized by an uncomfortable sensation mainly affecting corrected dentition, crowns, or dentures in which no abnormality is clinically detectable. This phenomenon is known as the phantom bite syndrome (Marbach 1976, 1978; Marbach et al 1983; Jagger and Korszun 2004). Despite repeated failures of dental surgery, these individuals persist in seeking bite correction from a succession of dentists. The condition is refractory to most treatments including psychotherapy (Marbach 1976, 1996).

We have reported previously that tricyclic antidepressants can be effective in treating phantom bite syndrome (Toyofuku 2000). However, the patients' non-acceptance of the anticholinergic side-effects of these drugs usually prevents high enough doses being achieved. Milnacipran is an antidepressant which, similarly to the tricyclics, inhibits the reuptake of serotonin and norepinephrine but without the side-effects of the older antidepressants. Recently it has been reported that milnacipran has been used to treat various oral psychosomatic disorders such as glossodynia and temporo-mandibular disorder (Toyofuku 2003; Toyofuku et al 2003; Toyofuku and Miyako 2004).

We present here a preliminary study of the efficacy and safety of milnacipran in a series of patients complaining of occlusal discomfort and diagnosed as suffering from phantom bite syndrome.

Subjects

We report here the results with 7 patients who came to the Department of Dentistry and Oral Surgery at the Fukuoka University Hospital in Japan in 2003–2004

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complaining of occlusal discomfort and diagnosed as suffering from phantom bite syndrome. Six patients were outpatients and one was hospitalized for severe fatigue and because of difficulty of attending the hospital since she lives on a remote island.

All patients met the following criteria;

1) preoccupation with their dental occlusion and a false belief that their dental occlusion was abnormal,

2) a long history of repeated dental surgery treatment failures with persistent requests for the occlusal treatment that they are convinced they need,

3) no history of significant psychiatric illness,

4) absence of obvious psychosocial problems. They all had a relatively high intelligence and socioeconomic status which enabled then to undergo endless costly and time-consuming dental treatments.

Methods

The patients were treated for 4 weeks in an open study. No dental or psychotherapeutic interventions were allowed during the study. Milnacipran was initially administered at 30 mg/day on a twice daily schedule and adjusted weekly according to clinical symptoms and tolerance.

The effect on occlusal discomfort was measured using a 100 mm visual analogue scale (VAS) where baseline severity was arbitrarily set to 100. Severity of depression was assessed using the Zung Self-Rating Scale for Depression (SDS). The clinical global improvements were graded by the treating clinician as "marked" (marked improvement with only occasional mild symptoms), "mild" (some improvement but with considerable residual symptoms), or "poor" (little or no improvement).

Table 1 Demographic and baseline data

Case nr	Age	Sex	Duration of complaint (months)	SDS (baseline)	Type of dental treatment
1	51	F	24	60	implants
2	29	F	42	53	orthodontic
3	55	F	6	55	crowns
4	54	F	15	57	crowns
5	63	M	24	61	full-denture
6	66	F	36	52	bridges
7	58	F	132	73	crowns
Mean (±SD)	53.7 ±12.1		39.9±42.4	58.7±7.1	

Abbreviations: SDS, Zung Self-Rating Scale for Depression.

Results

Baseline and demographic data of the 7 patients are given in Table 1. One patient was lost to follow-up after 2 weeks because he refused to continue, stating that he was "feeling well". Five of the remaining 6 patients were improved at the end of the 4-week treatment period, 3 markedly, and 2 mildly improved.

Patient 6 was unco-operative and refused to complete the VAS and SDS self-rating evaluations at the end of the study. She insisted, however, that she had had no improvement at all over the 4 weeks of the study. During the study she refused any increase of the dose of milnacipran, insisting on dental surgery bite correction instead of medication. Scores of 0 improvement were therefore used for this patient for the SDS and VAS analyses (Table 2).

Overall, the occlusal discomfort felt by the patients was considerably decreased between baseline and week 4 (Table 2). The mean decrease, as indicated by the VAS, was 55.3%.

Table 2 Results after 4 weeks of treatment with milnacipran

Case nr	Maximum milnacipran dose (mg/day)	Symptom severity VAS (% decrease)	Clinical global improvement	Depressive symptoms SDS	Side-effects
1	120	46	Mild	32	-
2	45	34	Mild	20	Headache
3	50	73	Marked	23	-
4	50	87	Marked	28	-
5[a]	60		Lost to follow-up after 2 weeks		
6[b]	30	0	Poor	52	Dizziness
7	100	92	Marked	23	Nausea
Mean(±SD)	65.0±32.5	55.3±35.4		29.7±11.7	

[a]Patient 5 was lost to follow-up after 2 weeks. The patient discontinued because he was "feeling well".

[b]Patient 6 was unco-operative and refused to complete the VAS and SDS self-rating evaluations at the end of the study. She insisted, however, that she had had no improvement at all over the 4 weeks of the study. Score of 0 improvement were therefore attributed for this patient and the SDS was considered to be unchanged.

Abbreviations: SDS, Zung Self-Rating Scale for Depression; VAS, visual analogue scale.

The level of depressive symptoms was also decreased as indicated by a 47.8% decrease in SDS. There was, however, no correlation between individual reductions in SDS and VAS values.

The mean final dose of milnacipran was 65.0 mg/day. Three patients reported adverse effects (headache, dizziness, and nausea, Table 2). All effects, however, were slight and transient, disappearing within a few days. No serious side-effects were observed.

Discussion

Patients exhibiting the phantom bite syndrome are considered to be refractory to most dental treatment. They become increasingly difficult to manage after repeated failures of dental surgery resulting in frustration for both the dentist and the patient who is usually convinced of the incompetence of their dentist and moves on to another dentist.

The present study suggests that milnacipran may be a beneficial treatment for such oral psychosomatic disorder patients with occlusal discomfort known as phantom bite syndrome.

The present study included 7 patients. While in absolute terms this is a small number, it is the largest study on phantom bite to have been reported to date. The Department of Dentistry and Oral Surgery at Fukuoka University has an excellent reputation in the treatment of dental psychosomatic disorders and for this reason patients are referred to this department by psychosomatic doctors from all over southern Japan. In addition 40% of patients in the present study came spontaneously to the department because of its reputation among patients.

In addition to the small number of patients, the obvious weakness of the study resides in its open-label design. The possibility of a placebo effect cannot be ruled out. However, the refractory nature of the disorder (the average duration at the beginning of the study was over 3 years) gives some credence to the observed results.

The quantification of subjective sensations is always difficult. In the present study a visual analogue scale was used to assess the degree of occlusal discomfort. This technique probably lacked precision, however, since some of the patients said they had difficulty in expressing quantitatively their symptom on a visual analogue scale. The development of other patient-rated measures such as a modified "faces scale" as used to quantify pain in children (Bieri et al 1990) would clearly be helpful for studying this and similar oral psychosomatic conditions.

None of the patients had any history of significant psychiatric illness, indeed they were all strongly resistant to the idea of psychiatric referral or treatment. Six of the 7 patients were, however, mildly depressed as rated by the Zung SDS scale and one more moderately depressed. In 5 out of 6 patients completing the study, the depression scores improved considerably to a level considered to be asymptomatic. In general, however, there was no correlation in this study between the decrease in SDS score and decrease in occlusal discomfort as indicated by the VAS. This result and clinical observations suggests that the efficacy of milnacipran in reducing occlusal discomfort is more likely to be a direct effect on the somatosensory system rather than on any associated depression.

Milnacipran and other serotonin-norepinephrine reuptake inhibitors have been shown to be effective on a variety of pain disorders both associated with, and independent of, depression (Briley 2003, 2004). Milnacipran is not, however, an analgesic as such and these effects have been suggested to involve an action on serotonin and norepinephrine neurotransmission (Stahl and Briley 2004). The action of milnacipran appears to be to correct the erroneous integration of peripheral signals by the central nervous system. A further example of milnacipran correcting erroneous integration of peripheral signals is in fibromyalgia where normally non-painful stimuli are perceived as pain signals (allodynia) (Vitton et al 2004). It would seem likely that the effect of milnacipran on phantom bite seen in the present study is another manifestation of this activity on the two monoamines systems where the occlusal discomfort experienced by the patient is the result of an erroneous integration of peripheral signals.

In conclusion, after 4 weeks treatment, 5 of the 6 patients completing the study responded to milnacipran with clinically significant improvements in their occlusal discomfort. This suggests that milnacipran may be an effective and well tolerated treatment for phantom bite in oral psychosomatic disorder patients. Phantom bite is, however, a chronic syndrome and the promising effects seen here after 4 weeks need to be followed up over a much longer time period.

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