

# Psychogenic facial pain: presentation and treatment

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## Abstract

Ninety three patients took part in a two centre double blind controlled clinical trial designed to assess the efficacy of dothiepin (Prothiaden) as compared with placebo and a soft biteguard in the treatment of psychogenic facial pain. The results showed the superiority of dothiepin over placebo in achieving pain relief; 71% of patients were pain free in the dothiepin group at nine weeks compared with 47% in the placebo group. The biteguard conferred no benefit and compliance in its use was poor. Out of 84 patients followed up for 12 months, 68 (81%) became pain free. An adverse life event before development of pain, minimal previous surgical treatment, and freedom from pain at nine weeks were strong prognostic indicators for successful treatment.

These results are clear evidence of the efficacy of dothiepin in psychogenic facial pain, though the drug may be needed for up to a year.

## Introduction

Two facial pain syndromes may be psychogenic in nature. Facial arthromyalgia (Costen's syndrome, the temporomandibular joint dysfunction syndrome) is the more common disorder and affects the temporomandibular joint and its musculature. The pain is frequently longstanding and is described as a dull ache, often with acute severe exacerbations.<sup>1</sup> Dentists see and treat most of these patients and usually attribute the disorder to both bruxism and malocclusion. Hence treatment is directed to improve the functional occlusal relation. The incidence of malocclusion, however, is no higher in these patients than in the general population, and occlusal adjustment has not been shown to be effective.<sup>2-4</sup>

Atypical facial pain (atypical facial neuralgia) is felt deep in the soft tissues or the bone, varying from a dull ache to severe throbbing. Two variants are atypical odontalgia, a continuous throbbing pain in the teeth associated with hypersensitivity to temperature and pressure in the absence of organic disease, and oral dysaesthesia, in which the patient complains of a disturbance of taste, a burning tongue, a dry mouth, and often intolerance of dentures.<sup>1</sup> Unlike pain due to local disease, this is often relieved by eating and drinking.

An association with masked or atypical depression has been suggested, and two studies have shown that antidepressants are an effective treatment of such pain. Lascelles in a controlled trial showed the efficacy of phenelzine in the treatment of atypical facial pain,<sup>5</sup> and Gessel in an uncontrolled trial found amitriptyline to be effective in the management of facial arthromyalgia when biofeedback had failed.<sup>6</sup>

These patients present to doctors with little knowledge of dentistry, or to dentists with no training in psychiatry. They are also notoriously resistant to a psychological diagnosis and to offers of non-surgical treatment.<sup>1, 7</sup>

Our study was designed to clarify the clinical features and to investigate the nature and frequency of accompanying psychiatric symptoms. The value of a tricyclic antidepressant and a soft plastic biteguard worn at night was assessed and the patients followed up for one year.

## Patients and methods

The study was based in the oral and maxillofacial surgery departments of the Eastman Dental Hospital and King's College Hospital, London. Patients were aged 16-65 years and had been referred consecutively with a diagnosis of facial arthromyalgia or atypical facial pain. Initial dental and medical assessments included radiological and haematological examinations, which ensured that there was no lesion to account for the pain and that there were no disorders to preclude treatment with a tricyclic antidepressant (dothiepin; Prothiaden). All patients had dental impressions taken in order to make a soft plastic biteguard for nocturnal wear. No patients had received psychotropic medication in the previous two weeks and all gave informed consent to the trial.

A total of 150 patients were allotted trial numbers, but 55 were subsequently excluded (26 from the dothiepin group, 29 from the placebo group). Twenty four patients were unwilling to cooperate, of whom six refused any medication, three were referred for inpatient psychiatric care, 11 would not accept psychotropic medication, and four referred themselves for other psychiatric care. Sixteen patients did not fulfil criteria for the trial, in that three were over 65 and one under 16, six had a history of coronary artery disease not elicited at the initial interview, and six patients had a possible dental cause for pain. Fifteen patients reported spontaneous recovery from pain and required no treatment.

Of the 95 patients included in the trial, one patient in the dothiepin group was withdrawn after three weeks because of a possible epileptic fit, and a patient in the placebo group was withdrawn after one week because of a reported loss of consciousness for 24 hours.

## ASSESSMENTS

For each patient a full medical and psychiatric history was taken. Sociodemographic details and adverse life events occurring within six months before the onset of pain were also noted. Psychiatric assessments were made with the aid of the clinical interview schedule, on which psychiatric diagnoses may be made according to the ninth edition of the International Classification of Diseases,<sup>7, 8</sup> and the Montgomery Asberg depression rating scale, which provides an accurate measure of changing symptoms in response to drug treatment.<sup>9</sup> A record was made of the severity and frequency of pain on a 0-4 scale (1 = mild, occasional pain; 2 = moderate, frequent pain; 3 = appreciable, frequent pain; 4 = severe, constant pain).

Patients were allocated at random to one of the following four treatment groups: (1) dothiepin plus use of nocturnal biteguard (n=23), (2) placebo plus use of nocturnal biteguard (n=25), (3) dothiepin alone (n=25), and (4) placebo alone (n=20).

Dothiepin and placebo tablets looked identical and the trial was carried out in double blind fashion. The tablets were prescribed in increasing doses of 25 mg nightly every three days up to a dose of 150 mg at night. The biteguard was fitted at the first interview and the patients instructed to wear it at night. Patients were reviewed at three week intervals for nine weeks, during which time medication was adjusted and use of the biteguard recorded. The severity and frequency of pain was noted and the Montgomery Asberg depression rating scale reapplied. The drug code was broken at nine weeks. Patients who had failed to respond to placebo were transferred to

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dothiepin in an open fashion. Patients who had responded to dothiepin continued with the medication according to their further needs. The patients were reviewed monthly and rated at three month intervals for one year to follow the course of symptoms and assess response to treatment.

## Results

**Trial series**—Of the 93 patients who completed the nine week trial period, 73 (78%) were women and 20 (22%) men. Ages ranged from 19 to 65 years, with a mean age of 41.3 (SD 11.0) years in the women and 37.6 (10.1) years in the men. There was wide variation in the length of time that the pain had been suffered—namely, three months to 30 years (mean 3.4 (SD 4.3) years). Sixty seven patients (72%) were in employment, and only 21 of the women (29%) were housewives. Twenty six patients (28%) had taken time from work because of the pain or, in the case of housewives, stated that the pain had noticeably altered their lives.

**Pain disorders**—Fifty patients (54%) received a principal diagnosis of facial arthromyalgia, and 43 (46%) a principal diagnosis of atypical facial pain. The disorders could not be distinguished by demographic or social factors, past history, or incidence of psychiatric morbidity. The two groups differed only in age; women with facial arthromyalgia were younger ( $n=36$ ; mean age 36.8 (SD 12.3) years) than women with atypical facial pain ( $n=27$ ; mean age 45.7 (SD 9.9) years) (Student's  $t$  test:  $p<0.001$ ). There was no difference in age between the men with facial arthromyalgia ( $n=14$ ; mean age 35.4 (10.4) years) and atypical facial pain ( $n=6$ ; mean age 42.7 (8.1) years).

**Psychiatric morbidity**—Of the 93 patients, 40 (43%) did not merit a psychiatric diagnosis, 20 (22%) were diagnosed as non-depressive neurosis, and 33 (35%) were considered to have a depressive neurosis. The mean psychiatric morbidity score (clinical interview schedule) was significantly higher in the 53 patients who obtained psychiatric diagnoses (28.4 (SD 8.4)) compared with those without psychiatric illness ( $n=40$ ; score 9.5 (SD 5.1)) (Mann-Whitney U test:  $p<0.001$ ). The mean depression score (Montgomery Asberg scale) was also higher in the 53 psychiatric cases (18.1 (SD 7.1)) than in the 40 non-psychiatric cases (4.5 (SD 4.4)) (Mann-Whitney U test:  $p<0.001$ ). Thirty of the non-psychiatric patients (75%) and 46 of the psychiatric patients (87%), however, reported life events within six months before the onset of pain.

**Treatment groups**—There were no significant differences between the treatment groups (table I).

TABLE I—Allocation of patients to treatment groups. [SD given in square brackets]

	Dothiepin	Placebo	Significance
No (%) of patients	48 (52)	45 (48)	NS
Mean age in years	41 [11]	40 [12]	NS
No (%) male	10 (21)	10 (22)	NS
No (%) female	38 (79)	35 (78)	NS
Social class (No (%))	I and II	18 (37)	NS
	III	23 (48)	NS
	IV and V	7 (15)	NS
		6 (13)	NS
Mean psychiatric score	19.8 [11.1]	20.8 [12.6]	NS
Mean depression score	12.3 [8.4]	12.6 [9.5]	NS
No (%) psychiatric cases	26 (54)	27 (60)	NS
Mean severity of pain	2.2 [0.6]	2.2 [0.6]	NS
Mean time suffered (years)	3.0 [3.8]	3.6 [4.0]	NS

NS = Not significant.

## OUTCOME OF TREATMENT AT NINE WEEKS

**Physical treatment and pain**—Compliance with the biteguard was poor; 18 (38%) of the 48 patients for whom a biteguard was prescribed had abandoned it after three weeks because of discomfort. A further 12 (25%) had discontinued the guard between three and nine weeks. Thus at nine weeks only 18 (38%) of the patients were using it regularly, so that it was difficult to assess its effectiveness. Comparison of the mean pain scores obtained by those who had and had not been prescribed the biteguard showed no difference between the groups throughout the nine week trial.

**Drug treatment and pain**—Dothiepin or placebo was taken in a mean daily dose of 130 mg for nine weeks. The percentage reduction in analgesic use was 83% in the dothiepin group compared with 42% in the placebo group at nine weeks ( $\chi^2=9.3$ ;  $df=1$ ;  $p<0.01$ ). Patients rating pain as 0 or 1 (mild, occasional pain) were judged to be pain

free. At three weeks 20 (42%) of the 48 patients in the dothiepin group and 12 (27%) of the 45 patients in the placebo group were pain free. At six weeks 30 (63%) of the dothiepin group compared with 25 (56%) of the placebo group were pain free. By nine weeks, however, the placebo response had fallen; 21 (47%) of the placebo group were pain free compared with 34 (71%) of the dothiepin group ( $\chi^2=4.7$ ;  $df=1$ ;  $p<0.05$ ).

**Psychiatric morbidity**—Of the 93 patients, 53 (57%) were "psychiatric cases" according to the clinical interview schedule ratings at the beginning of the trial, whereas only 17 (18%) were classified as psychiatric cases when reinterviewed at the end of the nine week study. Table II compares the initial scores, mean amelioration scores, and psychiatric morbidity in the patients who were pain free ( $n=55$ ) and those whose pain was not improved ( $n=38$ ). Refractory pain was

TABLE II—Pain and psychiatric morbidity scores (weeks 0-9). [SD given in square brackets]

	Pain free (n=55)		Pain not improved (n=38)	
	Dothiepin (n=34)	Placebo (n=21)	Dothiepin (n=14)	Placebo (n=24)
Mean initial pain score	2.2 (0.6)	2.1 [0.4]	1.9 [0.5]	2.2 [0.7]
Mean amelioration	1.8 (0.7)	1.4 [0.6]*	0	0.2 [0.5]
Mean initial psychiatric score	20.7 [12.0]	21.6 [11.6]	17.5 [8.6]	20.2 [13.7]
Mean amelioration	14.7 [10.3]	15.1 [11.0]	7.4 [7.0]	8.8 [12.3]
Mean initial depression score	12.6 [8.7]	13.8 [9.3]	11.4 [7.9]	11.6 [9.9]
Mean amelioration	9.8 [7.5]	10.1 [8.4]	4.2 [5.3]	5.3 [9.9]
No (%) psychiatric cases at week 0	18 (53)	13 (62)	8 (57)	14 (58)
No (%) psychiatric cases at week 9	4 (12)	4 (19)	3 (21)	6 (25)

\*Mann-Whitney U test:  $p<0.05$ .

associated with persistent psychiatric symptoms, but there was no significant difference in residual psychiatric morbidity between the groups. Furthermore, although dothiepin was more effective than placebo in relieving pain, it was not superior to placebo in relieving depression. In the depressed group the mean amelioration in Montgomery Asberg scores was 12.8 (SD 6.9) by dothiepin ( $n=18$ ) compared with 15.8 (7.2) by placebo ( $n=15$ ), whereas in the non-depressive neurotic patients dothiepin achieved a mean amelioration of 10.5 (9.1) ( $n=8$ ) compared with 7.5 (7.7) by placebo ( $n=12$ ).

## PROGNOSIS AND OUTCOME OF TREATMENT AT 12 MONTHS

Eighty four patients were followed up for 12 months. Sixteen of the 28 patients who had not responded to placebo agreed to take dothiepin, and 10 (63%) were pain free at six months. After six months of treatment most patients were anxious to stop medication. Thirty four patients experienced a short term recurrence of pain after withdrawal of dothiepin which remitted with reintroduction of medication. Recurrence of pain was not associated with relapse of psychiatric symptoms. Five of the 84 patients (6%) were psychiatric cases at 12 months and 68 (81%) of the patients were pain free. Table III shows that refractory pain was associated with a complex history of ill health and previous unsuccessful dental and surgical treatment for facial and other pains, which included hysterectomy, cholecystectomy, and spinal fusion. Freedom from pain at 12 months was associated

TABLE III—Past history of patients pain free and in pain at 12 months

	Pain free (n=68)	In pain (n=16)
No (%) with history of frequent ill health	6 (9)	5 (31)*
No (%) with history of unsuccessful surgical treatment	22 (32)	15 (94)**
No (%) with history of life event before development of pain	43 (63)	1 (6)**

Fisher's exact probability test: \* $p<0.01$ ; \*\* $p<0.001$ .

with an adverse life event, such as bereavement or family ill health, within six months of the onset of pain and initial response to treatment as reflected by the mean pain scores (table IV).

Thirty three patients (39%) were taking medication (dothiepin) at 12 months; of these were 26 (38%) of the 68 pain free patients. Only seven (44%) of the patients whose pain was not improved were taking medication.

## Discussion

These results show the superiority of dothiepin over placebo in the relief of psychogenic facial pain, the response to placebo being similar to that in other reports.<sup>10</sup> Physical treatment in the form of a soft plastic biteguard, however, was ineffective, and there was considerable non-compliance. The only other trial of a biteguard suggested that its value was a placebo effect.<sup>11</sup> Dothiepin induced pain relief appeared to be independent of antidepressant effect, as was seen in the non-psychiatric patients. The strong pain relieving response with placebo at six weeks may be explained by the fact that patients were warned not to expect any improvement until they had been taking a

TABLE IV—Mean pain scores of patients pain free and in pain at 12 months. [SD given in square brackets]

	Pain free (n = 68)	In pain (n = 16)
0 weeks	2.1 [0.5]	2.3 [0.5] (NS)
9 weeks†	1.0 [0.7]	1.8 [0.8]*
12 months	0.3 [0.5]	1.8 [0.5]*

\*Mann-Whitney U test:  $p < 0.001$ .

†End of trial period.

therapeutic dose of 150 mg for three weeks. As all patients increased their nightly dose by 25 mg every three days, this therapeutic level was taken for only three days before the first interview, whereas most patients had 24 days of adequate drug treatment before the second interview. The data confirm that a large proportion of depressed patients, especially those who are mildly depressed, may be expected to respond to placebo.<sup>12</sup>

Thirty of the non-psychiatric patients (75%) and 46 (87%) of the patients with psychiatric illness had reported adverse life events before the development of pain. Psychiatric symptoms, when present, disappeared as the pain was relieved in both the dothiepin and placebo groups and did not recur with the pain when drug treatment was reduced or stopped.

The patients were seen at monthly intervals during the follow up period and most became pain free. A history of previous unsuccessful surgical treatment and a reluctance to taking alternative medication was characteristic of those patients continuing to complain of pain.

Psychogenic facial pain appears to arise at sites of vasodilatation, many of which are within muscles or the capsule of the temporomandibular joints,<sup>13</sup> the cause being attributed to irrelevant muscular activity such as bruxism or a centrally activated autonomic vascular disturbance.<sup>14</sup> We can only speculate about how pain relief is obtained. Sternbach suggested that chronic pain arises from depleted concentrations of brain serotonin, particularly in the pain suppressor area of the dorsal raphe nucleus.<sup>15</sup> Tricyclic antidepressants reverse such depletion and have other analgesic actions in rheumatoid arthritis,<sup>16</sup> postherpetic neuralgia,<sup>17</sup> and terminal illness.<sup>18</sup> They have also been shown to potentiate the effects of narcotic analgesics such as morphine.<sup>19</sup> This lends support to the suggestion that the tricyclic antidepressants potentiate naturally occurring endorphins and thus improve mood and decrease sensitivity to painful stimuli.<sup>20</sup>

We conclude that dothiepin is superior to placebo in relieving psychogenic facial pain, although frequent support and counselling appear to be an important component of successful treatment. Furthermore, in our study placebo was equally as effective as dothiepin in the relief of psychiatric disturbance. The pain relief also appeared to be independent of any antidepressant effect and was maintained only by continued medication for a year in some patients. Failure to appreciate the need for long term drug treatment at a maximum tolerated dose may explain the pessimistic attitude held by some clinicians to the management of psychogenic facial pain.

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ONE HUNDRED YEARS AGO So much illness is directly traceable to chills and colds contracted during railway-travelling in this very changeable and trying climate of ours, and so little has as yet been done by our railway companies to introduce a better method of heating the carriages, that we are glad to see the matter is attracting some attention at the hands of the Caledonian Railway Company, and some considerable progress has been made in supplying this long felt want. The idea is to utilise the exhaust steam from the engine, which at present passes into the atmosphere through the funnel, and to carry it into pipes which pass underneath the frame of the carriage, and are then led through the floor of the carriage to coils placed beneath the seat in each compartment. The connection between the carriages is by means of flexible tubes, such as those used in the continuous air-brake, and thus the heat is carried throughout the whole train. In the case of a trial recently made with a train leaving Glasgow for one of the adjoining towns, very satisfactory results were obtained; and we hope that, when means are forthcoming for better regulating the heat, we shall see this system generally adopted, as it will be a great boon to the travelling public. (*British Medical Journal* 1884;i:477.)