



PAIN AND DISCOMFORT IN PATIENTS UNDERGOING ORTHODONTIC TREATMENT WITH CROWDING

Dental Science

Shrada.B.Kumar final year BDS, Saveetha Dental College

ABSTRACT

Aim and objective: The aim of this study is to investigate pain and discomfort experienced among patients undergoing orthodontic treatment with different types of crowding for a period of one month after the insertion of the appliance.

Background: The movement of teeth by orthodontic appliances typically causes some discomfort to the patient. It has been reported that fear of pain is a key factor discouraging a patient from seeking orthodontic treatment. Pain, induced by orthodontic treatment, generally could be categorized as mild and short lasting. Discomfort is expressed as unpleasant tactile sensations, feeling of constraint in the oral cavity, stretching of the soft tissues, pressure on the mucosa, displacement of the tongue, soreness of teeth and pain. During the orthodontic treatment patients frequently undergo a number of functional complaints and social discomfort and they are anxious about their appearance. The pain and discomfort perceived by each patient may vary.

Reason: To evaluate the pain and discomfort experienced by patients with different types of crowding after the insertion of the arch wire.

Methodology: A questionnaire study is to be conducted among the patients undergoing orthodontic treatment.

KEYWORDS

pain, discomfort, crowding

Introduction:

Orthodontics aims at correction of malocclusion of teeth. Crowding is one such malocclusion for which patients seek orthodontic treatment. Crowding, according to little's irregularity index can be classified into mild, moderate and severe. But different reasons lead to withdrawal from continuing the treatment. Pain is one of the important factor discouraging patients from continuing treatment. Though the cause of pain is not fully understood, there are few concepts that are put forth. Initial pain is said to be due to the compression of PDL ligament after placing the arch wire. The later pain is due to hyperalgesia of the PDL, which started a few hours later (1). There are indications that the perception of pain alters according to the blood flow alteration in the PDL (2,3). Other complains is discomfort of the patients undergoing orthodontic treatment. Patients experience discomfort in mastication, speech, socializing, etc... The amount of initial pain and discomfort experienced may determine the acceptance of the appliance and continuation of the treatment (4,5). Patients' self confidence might be affected due to impairment in speech and visibility of the appliance (6,7). Though the perception of pain varies from person to person it is important to understand the pain and discomfort experienced by the patients undergoing treatment.

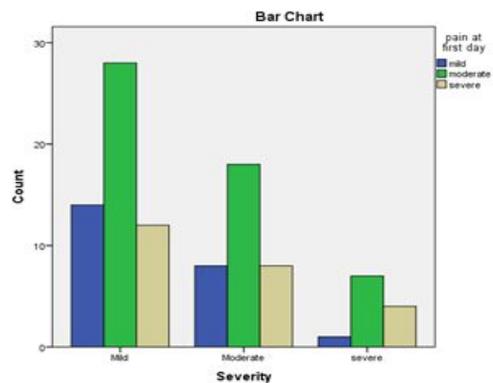
Methodology:

100 patients with different severity levels of crowding treated by the Department of Orthodontics, Saveetha Dental College, Chennai were taken into study. They were asked to fill the questionnaire a month after wiring was done. The questionnaire included various questions on pain, discomfort and the different time period (1 hour, 3 hour, 6 hour, 1 day, 1 week, 2 week, 3 week, 1 month). Option for the amount of pain was also mentioned as, 0-no pain, 1- mild pain, 2-moderate pain, 3-severe pain. Severity of crowding was also recorded using little's irregularity index. Data was collected and analysis was done using SPSS software.

Among the population taken in for study 45% were male and 55% were female. 54 patients had mild crowding, while 34 and 12 people had moderate and severe crowding respectively.

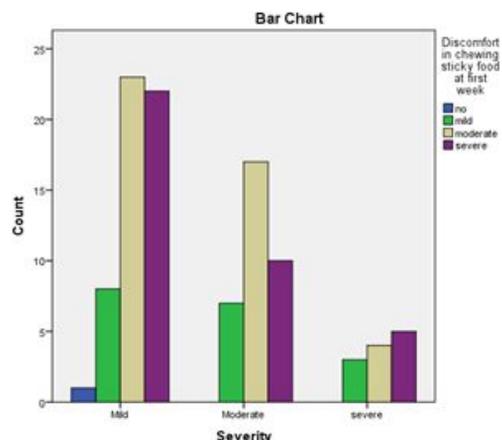
Results:

When patients were asked when the pain started after wiring, for most of them it was 3 hours after the wiring was done and the pain was severe till one day and then gradually subsided. Patients with mild crowding had mild pain while the ones with moderate and severe crowding had moderate to severe pain. On questioning about discomfort in daily activities along with discomfort in sports and socializing in school, college or work place, patients with all three types of crowding had mild or no discomfort till six hours. Maximum discomfort was seen for three weeks and then the patients got used to it.



Difficulty in speech started very early for most of them as early as first hour after the wiring was done. The difficulty gradually decreased after one week, as the patients got used to the appliance. When enquired about difficulty in chewing hard or sticky food, most of the patients avoided chewing on hard food, the difficulty began at six hours from the time wiring was done with maximum difficulty at one week, with the difficulty gradually decreasing.

		Discomfort in chewing sticky food at first day				Total
		no	mild	moderate	severe	
Severity	Mild	5	18	19	12	54
	Moderate	7	8	10	9	34
	severe	0	4	5	3	12



Pain	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	SEV	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	Sev	NO	MI	Mod	Sev			
		L	D			LD	D			LD	D	ERE		LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	17	33	4	0	0	42	12	0	0	18	25	11	0	14	28	12	0	13	27	14	9	25	15	5	19	31	4	0	38	16	0	0	0	0	0	0			
Moderate	11	23	0	0	2	22	9	1	0	13	16	5	0	8	18	8	0	8	17	9	5	13	14	2	5	14	5	0	21	13	0	0	0	0	0	0			
Severe	4	6	2	0	1	6	5	0	0	4	4	4	0	1	7	4	0	2	4	6	1	4	6	1	3	6	3	0	6	6	0	0	0	0	0	0			
Discomfort In Daily activities	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev			
		L	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	29	25	0	0	9	37	8	0	0	23	27	4	0	24	19	11	16	24	12	2	23	17	4	0	19	25	10	0	44	10	0	0	0	0	0	0			
Moderate	21	13	0	0	4	25	5	0	0	13	17	4	0	14	13	7	4	21	9	0	12	22	0	0	6	14	13	1	29	5	0	0	0	0	0	0			
Severe	5	7	0	0	2	10	0	0	0	4	6	2	0	3	4	5	2	7	0	3	2	10	0	0	6	1	5	0	10	2	0	0	0	0	0	0			
Discomfort in sports	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev			
		L	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	37	17	0	0	21	32	1	0	20	32	2	0	12	31	11	0	13	28	13	0	4	23	26	1	12	17	13	12	39	15	0	0	0	0	0	0			
Moderate	18	16	0	0	14	20	0	0	11	21	2	0	9	22	3	0	9	18	7	0	5	15	11	3	9	14	7	4	29	5	0	0	0	0	0	0			
Severe	8	4	0	0	6	6	0	0	6	6	0	0	4	4	4	0	3	4	5	0	1	7	4	0	2	4	2	4	9	3	0	0	0	0	0	0			
Discomfort in speech	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev			
		L	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	13	25	16	0	6	17	23	0	0	14	33	7	0	22	24	8	12	28	14	0	16	28	10	0	18	26	10	0	41	13	0	0	0	0	0	0			
Moderate	12	15	7	0	7	11	11	0	0	9	22	3	1	13	4	6	10	21	3	0	14	15	5	0	14	15	5	0	29	4	1	0	0	0	0	0			
Severe	4	6	2	0	1	3	7	0	0	2	9	1	0	8	3	1	5	5	2	0	3	7	2	0	6	5	1	0	9	3	0	0	0	0	0	0			
Difficulty in chewing sticky food	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev			
		L	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	25	29	0	0	18	31	5	0	8	29	16	1	5	18	19	12	1	8	23	22	16	18	13	7	22	26	6	0	24	21	9	0	0	0	0	0			
Moderate	21	13	0	0	14	16	4	0	1	17	13	3	7	8	10	9	0	7	17	10	7	11	11	5	12	13	9	0	14	17	3	0	0	0	0	0			
Severe	7	5	0	0	1	10	1	0	1	6	5	0	0	4	5	3	0	3	4	5	4	3	5	0	6	4	2	0	2	8	2	0	0	0	0	0			
Difficulty in chewing hard food	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev			
		L	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	19	24	11	0	21	29	4	0	6	16	26	6	0	9	31	14	0	21	18	15	16	20	10	8	21	27	6	0	40	14	0	0	0	0	0	0			
Moderate	14	16	4	0	18	15	1	0	5	15	11	3	0	3	22	9	0	11	14	9	8	12	9	5	8	20	6	0	21	13	0	0	0	0	0	0			
Severe	5	5	2	0	5	6	1	0	1	5	4	2	0	1	9	2	0	3	5	4	2	6	3	1	5	6	1	0	11	1	0	0	0	0	0	0			
Discomfort in school	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev	NO	MI	Mod	Sev			
		L	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	33	21	0	9	26	23	5	0	15	24	14	1	18	26	10	0	24	9	16	5	13	32	9	0	27	27	0	0	36	18	0	0	0	0	0	0			
Moderate	24	9	1	0	19	11	4	0	12	16	5	1	10	16	8	0	12	4	12	6	14	16	4	0	18	16	0	0	20	14	0	0	0	0	0	0			
Severe	8	4	0	0	8	3	1	0	3	6	3	0	5	4	3	0	6	1	2	3	3	5	4	0	6	6	0	0	5	7	0	0	0	0	0	0			
Discomfort to cold substance	1st hour				3rd hour				6th hour				1st day				1st week				2nd week				3rd week				1st month										
	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	SEV	NO	MI	Mod	SEV			
		L	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D			LD	D
Mild	39	14	1	0	27	18	9	0	17	28	8	1	6	23	25	0	19	31	4	0	36	14	4	0	39	13	2	0	49	5	0	0	0	0	0	0			

Mod erate	20	13	1	0	10	18	6	0	10	18	5	1	3	16	13	2	15	7	2	0	23	11	0	0	24	9	1	0	31	3	0	0
Seve re	8	4	0	0	6	4	2	0	4	6	2	0	1	7	3	1	3	8	1	0	9	2	1	0	9	3	0	0	12	0	0	0

Discussion:

The study was conducted to study about the pain and discomfort experienced by patients undergoing orthodontic treatment with crowding. It has to be understood that the pain perceived by each individual varies and the attitude of the patient determines the discomfort level of the patient. When pain and discomfort was compared between patients with mild, moderate and severe crowding no major difference was seen, all three category patients had similar levels of pain and discomfort. Discomfort experienced by the patients started at sixth hour and was felt till the first week after which the discomfort gradually reduced. Maximum amount of pain was felt 24 hours after the appliance was wired after which there was reduction in pain. The study analysis is supporting the result of various other studies done on pain and discomfort of the patients. No gender discrimination was seen in the pain and discomfort perceived.

Conclusion:

Pain and discomfort being the main consideration among patients seeking for orthodontic treatment and is one of the main factor discouraging them from continuing the treatment. Understanding the duration and severity of pain and discomfort is useful in prescription of analgesics at definite period. Counseling the patients is important in altering the attitude of the patients. This would increase the willingness of the patient for the treatment.

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