Original Research

Evaluation of dentition status and temporomandibular joint disorders in patients with chronic neck and back pain

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ABSTRACT:
Background: The stomatognathic system (SS) is a functional unit of the body which plays an important role in postural control. The present study was conducted to assess dentition status and temporomandibular joint disorders in patients with chronic neck and/or back pain. **Materials & Methods:** 120 patients of chronic neck and/or back pain of both genders were included. Parameters such as class I molar relation, class I canine relation, anterior deep bite, bruxism, facial asymmetry, positive fremitus test, steep curve of Spee, flat Wilson's, TMJ deviation, TMJ clicking and TMJ deflection were recorded. **Results:** Out of 120 patients, males were 50 and females were 70. There was no back kpain in 18, mild in 42, moderate in 41 and severe pain in 19 patients. Neck pain was mild in 34, moderate in 52 and severe in 24 patients. The difference was significant (P< 0.05). Class I molar relation was seen in 78%, class I canine relationin 72%, steep curve of Spee in 57%, flat Wilson's in 95%, TMJ deviation in 81%, TMJ clicking in 75%, TMJ deflection in 56%, anterior deep bite in 12%, bruxism in 13%, facial asymmetry in 25% and positive fremitus test in 74%. The difference was non- significant (P> 0.05). Class I molar relation was seen in 81%, class I canine relation in 72%, steep curve of Spee in 64%, flat Wilson's in 91%, TMJ deviation in 85%, TMJ clicking in 72% and TMJ deflection in 54%, anterior deep bite in 18%, bruxism in 12%, facial asymmetry in 23% and positive fremitus test in 79%. The difference was non- significant (P> 0.05). **Conclusion:** There was high prevalence of disturbed dental status in patients with temporomandibular joint disorders.
Key words: temporomandibular joint disorders, dental status, Joint pain

INTRODUCTION

Temporomandibular joint (TMJ) disorders (TMD) collectively describe a wide array of acute and chronic pain conditions affecting the craniofacial and oral complexes. Signs and symptoms of these disorders range from tenderness in the muscles of mastication to severe TMJ disability, which can affect both hard and soft tissue components of the TMJ and include limited mandibular range of motion, joint pain, limited mouth opening, and mandibular deviation during function.[1]

The stomatognathic system (SS) is a functional unit of the body which plays an important role in postural control.[2] Postural adjustments are the result of a complex system of mechanisms (feed-back and feed-forward) that are controlled by multisensory inputs integrated in the central nervous system and play a critical role in orthostatic and dynamic postural

control, influencing the ability to perform daily living activities.[3]

The TMJ makes muscular and ligamentary connections to the cervical region, forming a functional complex called the "cranio-cervico-mandibular system".[4] The extensive afferent and efferent innervations of the stomatognathic system are reflected in the extensive representation of the oro-facial district in the motor and sensory areas of the cerebral cortex.[5] The present study was conducted to assess dentition status and temporomandibular joint disorders in patients with chronic neck and/or back pain.

MATERIALS & METHODS

The present study comprised of 120 patients of chronic neck and/or back pain of both genders.

All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. Parameters such as class I molar relation, class I canine relation, anterior deep bite, bruxism, facial asymmetry, positive fremitus test, steep curve of Spee, flat Wilson's, TMJ deviation, TMJ clicking and TMJ deflection were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 120		
Gender	Males	Females
Number	50	70

Table I shows that out of 120 patients, males were 50 and females were 70.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Back pain	No pain	18	0.05
	Mild	42	
	Moderate	41	
	Severe	19	
Neck pain	Mild	34	0.04
	Moderate	52	
	Severe	24	

Table II shows that there was no back pain in 18, mild in 42, moderate in 41 and severe pain in 19 patients. Neck pain was mild in 34, moderate in 52 and severe in 24 patients. The difference was significant (P< 0.05).

Table III Dentition status in neck pain

Dental findings	Percentage	P value
Class I molar relation	78%	0.21
Class I canine relation	72%	
Steep curve of Spee	57%	
Flat Wilson's	95%	
TMJ deviation	81%	
TMJ clicking	75%	
TMJ deflection	56%	
Anterior deep bite	12%	
Bruxism	13%	
Facial asymmetry	25%	
Positive fremitus test	74%	

Table III shows that class I molar relation was seen in 78%, class I canine relation in 72%, steep curve of Spee in 57%, flat Wilson's in 95%, TMJ deviation in 81%, TMJ clicking in 75%, TMJ deflection in 56%, anterior deep bite in 12%, bruxism in 13%, facial asymmetry in 25% and positive fremitus test in 74%. The difference was non- significant (P> 0.05).

**Table IV Dentition status in back pain**

Dental findings	Percentage	P value
Class I molar relation	81%	0.25
Class I canine relation	72%	
Steep curve of Spee	64%	
Flat Wilson's	91%	
TMJ deviation	85%	
TMJ clicking	72%	

TMJ deflection	54%	
Anterior deep bite	18%	
Bruxism	12%	
Facial asymmetry	23%	
Positive fremitus test	79%	

Table IV, graph I shows that class I molar relation was seen in 81%, class I canine relation in 72%, steep curve of Spee in 64%, flat Wilson's in 91%, TMJ deviation in 85%, TMJ clicking in 72% and TMJ deflection in 54%, anterior deep bite in 18%, bruxism in 12%, facial asymmetry in 23% and positive fremitus test in 79%.The difference was non- significant (P> 0.05).

Graph I Dentition status in back pain
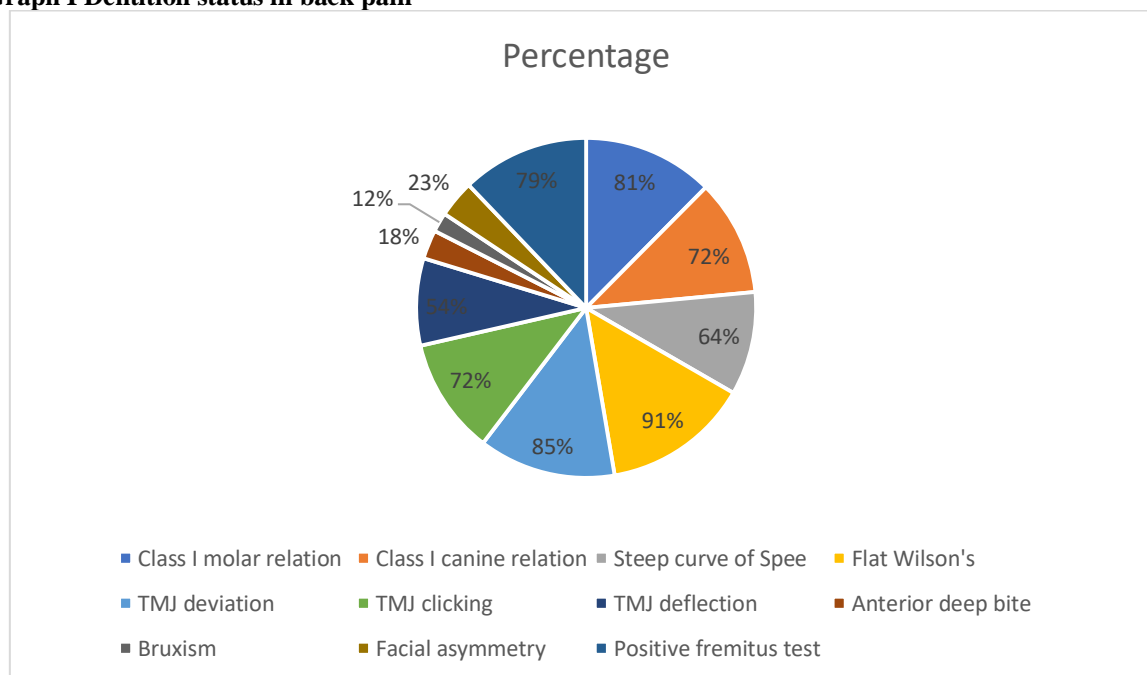
DISCUSSION

Temporomandibular disorders (TMD) are a significant public health problem affecting approximately 5% to 12% of the population. TMD is the second most common musculoskeletal condition (after chronic low back pain) resulting in pain and disability.[6] Pain-related TMD can impact the individual's daily activities, psychosocial functioning, and quality of life. Overall, the annual TMD management cost in the USA, not including imaging, has doubled in the last decade to $4 billion.[7] Patients often seek consultation with dentists for their TMD, especially for pain-related TMD. Diagnostic criteria for TMD with simple, clear, reliable, and valid operational definitions for the history, examination, and imaging procedures are needed to render physical diagnoses in both clinical and research settings.[8]The present study was conducted to assess dentition status and temporomandibular joint disorders in patients with chronic neck and/or back pain.

We found that out of 120 patients, males were 50 and females were 70.Jasim et al[9] in their study on 189 patients with bilateral maxillary and mandibular impacted third molars aged between 18 and 25 years showed that there was no significant relationship between the presence of impacted third molars and development of TMJ clicking. Impacted third molars were not considered to be an effective factor in the occurrence or development of TMJ clicking or sound.

We observed that there was no back pain in 18, mild in 42, moderate in 41 and severe pain in 19 patients. Neck pain was mild in 34, moderate in 52 and severe in 24 patients. Chandanshive et al[10] found that out of 300 patients, 116 (38.67%) were males and 184 (61.33) were females. The mean age of patients referred for the study was 38.09 years. The most common dental finding in both chronic neck and/or back pain patients was flat curve of Wilson's (90%) whereas the least finding found was grade III tooth mobility (0.04 ± 0.31 teeth). In TMDs most common finding was deviation of jaw (79.3% in neck and 100% in back pain) whereas the least finding found was deflection of jaw (50% in neck and 48.2% in back pain)

We found that class I molar relation was seen in 78%, class I canine relationin 72%, steep curve of Spee in 57%, flat Wilson's in 95%, TMJ deviation in 81%, TMJ clicking in 75%, TMJ deflection in 56%, anterior deep bite in 12%, bruxism in 13%, facial asymmetry in 25% and positive fremitus test in 74%. Alkhubaizi et al[11]included 199 participants (66% female and 34% male). The prevalence of TMD-related pain was

26.8% ($n = 42$); men and women did not differ statistically in their TMD-related pain. TMD-related pain cases differed significantly on the Center for Epidemiologic Studies Depression Scale (CES-D) and body pain scores compared with non-cases.

We observed that class I molar relation was seen in 81%, class I canine relation in 72%, steep curve of Spee in 64%, flat Wilson's in 91%, TMJ deviation in 85%, TMJ clicking in 72% and TMJ deflection in 54%, anterior deep bite in 18%, bruxism in 12%, facial asymmetry in 23% and positive fremitus test in 79%. Mickeviciute Eet al[12] in their study 189 primary patients were divided into control group (grade 0-1) without TMJ dysfunction; and experimental group (grade 2-4) with presumable TMJD.In experimental group tooth wear of anterior and posterior region increases with age respectively. Centric occlusion (CO) and relative rest heights difference increases with age in both groups. In patients with diagnosed TMJD the difference between heights in CO and relative rest was bigger than in patients without TMJD. In the experimental group TMJD was diagnosed the most of patient grade-4 in 90%. The most common symptom is joint sounds was observed in 72.2%.35-50 and over 50 age groups of patients had a higher first molars degree of wear than the younger ones. In patients with diagnosed TMJD the difference between heights in CO and relative rest was bigger than in patients without TMJD. TMJD symptoms and of posterior teeth pathological wear interface hypothesis confirmed. In the experimental group TMJD was diagnosed the most common in 90% of patients grade-4.

The limitation the study is small sample size.

CONCLUSION
Authors found that there was high prevalence of disturbed dental status in patients with temporomandibular joint disorders.

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