ORIGINAL RESEARCH

A cross sectional observational study to assess the prevalenceof signs and symptoms of craniomandibular dysfunctionin patients visiting SDM college of dental sciences, Dharwad

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ABSTRACT

Background: Temporomandibular joint disorders (TMDs) are a type of craniomandibular dysfunction and needs to be identified and classified for better treatment planning. It was seen to impact or limit the person's ability to carry out their daily chores.

Aim: This study aims to determine the proportion of population suffering from signs and symptoms of craniomandibular dysfunction.

Methodology: A pilot study was carried out to determine the sample size and the most common symptoms seen in patients with TMD. The sample size was estimated to be 1100. Every third patient visiting the dental college was screened. The data obtained were age, sex, TMD, occlusal dysfunction, craniocervical dysfunction, TMD, systemic influences, and pain. Research Diagnostic Criteria/TMD criteria were used to evaluate the presence of TMD.

Results: The mean age of participants was 38.94 ± 11.27 years. The mean age of participants showing signs and symptoms of TMD was 36.95 ± 11.10% and 38.29 ± 11.15% for the presence of pain. About 38.28% of females and 33.34% of males had signs of TMD. Pain was present in 44.53% of females and 39.96% of males. About 37.10% of females and 35.71% of males showed the presence of two signs of craniomandibular dysfunction. An alarming 89.45% of the population showed some signs of craniomandibular dysfunction.

Conclusion: More percentage of population had either one or two signs of craniomandibular dysfunction. It was observed that pain was also present in patients without TMD. Hence, the evaluation for craniomandibular dysfunction is more important than just evaluation of the joint for a successful treatment planning.

Keywords: Craniocervical dysfunction, Craniomandibular dysfunction, Cross-sectional survey, Joint dysfunction, Occlusal discrepancy, Orofacial pain, Temporomandibular joint disorders, Tender muscles.

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INTRODUCTION

The National Institute of Dental and Craniofacial Research states that temporomandibular joint (TMJ) and muscle tissue, generally called "TMJ," are a group of conditions that reason pain and dysfunction in the jaw joint and the muscles that control jaw movement. The American Dental Association in 1983 has recommended that the term temporomandibular disorders (TMD) allude to a group of disorders portrayed by pain in the TMJ, the periauricular region, or the muscles of mastication; TMJ sounds in mandibular function; and deviations or limitation in mandibular scope of movement.[1] In 1934, the first of a progression of articles by otolaryngologist Costen[2] depicted a progression of TMJ, ear, and "sinus" manifestations emerging from the joint. The expression "Costen disorder" was surrendered and was supplanted by such terms as "TMJ syndrome," "TMJ pain dysfunction syndrome," "mandibular pain dysfunction syndrome," and "craniomandibular syndrome," the same analytic and treatment mistakes kept on being made. The emphasis still was on the TMJ; the etiology still was thought to be an adjustment in the joint that caused displacement in condyle (mechanical displacement theory),[3,4] and treatment comprised basically of different changes in occlusion (occlusal equilibration, orthodontics, and full-mouth reconstruction).[5,6] In the 1950s, Schwartz[7,8] and Landa at Columbia University showed that the masticatory muscles were adding to a portion of the torment and dysfunction found in patients with TMJ pain dysfunction syndrome. There is unmistakably a need to separate the wordings utilized. Craniomandibular dysfunction is a suitable word for the conditions happening normally. It might possibly incorporate TMD, pain, or occlusal discrepancies. Hence, a need for a study to assess the

common signs and symptoms of craniomandibular dysfunction arouse, while defining and classifying them for better understanding and communication.

METHODOLOGY

A pilot study was conducted on 250 patients visiting the hospital for the determination of sample size and most commonly occurring craniomandibular signs and symptoms.

$$n = \frac{z21-\alpha/2Px(1-P)}{\in 2}$$

Where, n=Sample size

Z21−α/2=Normal variation at 0.05

P=Proportion of subjects who showed signs and symptoms of craniomandibular dysfunction

∈ = Relative proportion

The sample size was estimated using sample size software nMASTER 2.0 to be 1029 which was rounded off to 1100. The most common signs and symptoms observed were occlusal dysfunction, TMJ disorders (TMD), headache and neck pain, airway resistance, and pain. Every third patient visiting to the college was enrolled in the study. The data obtained were age, sex, TMD, occlusal dysfunction, craniocervical dysfunction, systemic influences, and pain. Research Diagnostic Criteria (RDC)/TMD criteria were used to evaluate the presence of TMD. Occlusal dysfunction included (presence of at least one sign/symptom) attrition, occlusal cant, bruxism, clenching, or missing teeth. Craniocervical dysfunction included (presence of at least one sign/symptom) poor head posture, airway compression, ear related, or pain in craniocervical region. TMJ dysfunction included (presence of at least one sign/symptom) clicking, tenderness, deviation of mandible, or restricted movements. Systemic influences included (presence of at least one sign/symptom) tingling or numbness in finger, shoulder, and radiating pain or lower back pain.

RESULTS

A total of 1100 participants were enrolled for the survey, of which 512 (46.55%) were female and 588 (53.45%) were male. The mean age of the participants was 38.94 ± 11.27 years. First, each participant was screened for TMD using RDC for TMD. Around 392 (35.64%) of participants were diagnosed with TMD. The participants were also screened for various signs and symptoms identified with craniomandibular dysfunction. Six hundred and twenty (56.36%) participants showed signs of craniocervical dysfunction followed by 541(49.18%) for joint dysfunction, 432 (39.27%) for occlusal discrepancies, and 290 (26.36%) for systemic influences. Evaluation of signs and symptoms of craniomandibular dysfunction showed that 116 (10.55%) were free of any signs or symptoms and 984 (89.45%) had minimum one present. Out of these 984 participants, 450 (45.73%) were females and 534 (53.27%) were males. It was observed that 346 (31.45%) participants had one sign or symptom present, 400 (36.36%) had two present, 215 (19.55%) had three present, and 23 (2.09%) had all four present. A total of 71(6.45%) participants complained of pain in the absence of TMD but had minimum of two signs or symptoms of craniomandibular dysfunction. No noticeable difference was seen in mean age or gender in all categories [Figure 1].

DISCUSSION

TMD is considered as a musculoskeletal issue of masticatory framework. The signs and side effects incorporate pain, joint sounds, limitation in jaw movement, muscle, and joint tenderness.[9] Lumping of signs and indications related with congenital muscular dystrophy (CMD) includes the danger of including unimportant components which might be the impact of a given causal complex. An off base operational meaning of CMD brings about the absence of affiliation or in affiliations autonomous. CMD is an aggregate term including various clinical signs and indications of a few issue including the masticatory muscles, TMJ, and neighboring structures of stomatognathic framework. In this investigation, it was seen that in 89.45%, 31.45% experienced at least one sign and the most elevated being 36.37% which exhibited two signs. Occlusal dysfunction was seen in 39.3%. Craniocervical dysfunction was seen in 56.4%. Joint dysfunction was seen in 49.2%. Systemic influences were seen in 26.37% and pain was accounted

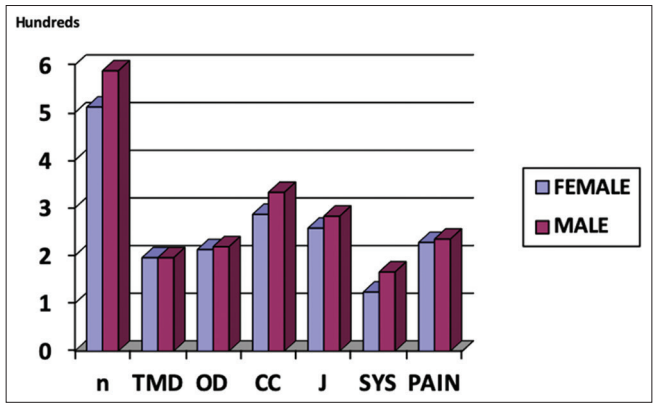

Figure 1: Evaluation of signs and symptoms of craniomandibular dysfunction. N=Sample size male – 588, female – 512, TMD=Temporomandibular joint disorder; male – 196, female – 196, OD=Occlusal dysfunction; male – 219, female – 213, CC=Craniocervical dysfunction; male – 333, female – 287, J=TM joint dysfunction; male – 283, female – 258, SYS=Systemic influences; male – 166, female – 124, Pain=Male – 235, female – 228

for in 42.2% of the patients having at least one indications of CMD. In contrast to the results in this study, in a prior study, 33% of the entire sample showed no less than one manifestation with females essentially more than males. The most continuous manifestation of TMD was headache (22%) while jaw locking was the slightest common sign (2.1%). It is also seen that head and body posture could be identified with the underlying beginning, advancement and propagation of TMD and that TMD patients tend to show cervical spine hyperlordosis. Fink et al, certifying the discoveries of this investigation, said that patients with TMD every now and again demonstrate indications identified with the cervical spine region.[10] Pervasiveness of tinnitus was observed to be 8 times higher in members with TMD (30 of 82 [36.6%]) than in members without TMD (38 of 869 [4.4%]). Every one of the members with one-sided TMD and one-sided tinnitus demonstrated these conditions on a similar side. Stomatognathic treatment enhanced tinnitus side effects in 11 of 25 members (44%).[11] The manifestations of unending TMD incorporate headache, ear related, and cervical spine disorder. In this study, we discovered that larger part of individuals experienced the ill effects of no less than maybe a couple of dysfunctions of the craniomandibular framework. Wide range and changeability of event of dysfunction were additionally noted. In a few patients having dysfunction, the TMD score demonstrated them as typical people; this was not the situation in craniomandibular dysfunction patients. In patients demonstrating at least two criteria indicated 83.7% relationship with agony and restricted their everyday useful exercises.

CONCLUSION

The treatment should be different for each classification and depends on the presence of pain and limited functionality of a person as a whole. This will lead to an efficient treatment for a particular patient, ease in communication between dental professionals and will allow better-directed research in the field of dental medicine linking dental with medical sciences.

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