EVALUATION OF TEMPORO-MADIBULAR JOINT DISORDERS BY CONVENTIONAL RADIOGRAPHIC PROCEDURES AND COMPUTED TOMOGRAPHY AS DIAGNOSTIC TOOL

(A COMPARATIVE RADIOGRAPHIC STUDY)

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ABSTRACT

AIMS AND OBJECTIVES :

1. To compare the efficacy of conventional plain film radiographic procedures and computed tomography as a diagnostic aid in temporomandibular joint disorders and to correlate with clinical diagnostic findings.

2. To find out the diagnostic efficacy of a single or combination of various imaging modalities in diagnosing TMJ disorders.

3. To bring out CT as basic diagnostic tool in diagnosing TMD.

4. To rule out TMD patients based on various imaging techniques and clinical criterion.

MATERIALS AND METHODS :

12 symptomatic patients clinically diagnosed with temporomandibular joint dysfunctions, were included in the study group.

6 Males 6 females with average age group of 25 - 22 yrs.

8 asymptomatic volunteers form the control group with average age group of 19 -36 yrs.

All the Subjects were examined on conventional dental chair by using basic dental instruments and assisted by bimanual palpation of muscles of mastication. A subjective questionnaire is given to rule out the clinical findings such as jaw pain, joint noise, locking, restricted mouth opening, deviation of mandible, Crepitations and tenderness at the TMJ area were taken as study subjects and volunteers exhibiting none of these symptoms are taken as controls.

Each Patient was subjected to clinical diagnostic process in accord with research diagnostic criteria; the pain threshold of the patient is measured according to the **Visual Analog Scale**.

After the preliminary clinical examinations all the subjects were taken for the conventional radiographic procedures such as **OPG Bone Slice** (eye Panoramic TMJ projection Tomography), **Transcranial TMJ** Projection to find out any surface irregularities in the Condylar head and also to note the joint space.

All the patients were also subjected for computed tomography under a radiologist assessment at a local diagnostic centre at Guntur town and the radiologist report is taken as an evidence for presence or absence of any bony abnormality or TMJ pathology.

Following the scan, sagittal reformatting through each condyle was performed usually on an offline console. At least 8 coronal and 8 axial reconstructions at different positions were obtained through each condyle with special concern given to the most medial sections.

The CT scan report given by the experienced Radiologist (**interobserver 2**) is forwarded to an Oral surgeon (**interobserver3**) and an Oral Diagnostician (**interobserver1**) who independently examined the frontal and lateral images of CT scan.

The data collected thus was sent for the **statistical analysis** to compare the efficacy of conventional plain film radiography and specialized TMJ radiography with CT in diagnosis of Temporomandibular Joint disorders and to correlate the radiography/ imaging findings to clinical signs and symptoms.

Statistical analysis was performed were Sensitivity and Specificity tests were drawn for the study.

RESULTS:

In total of 12 subjects of the study group, 9 subjects (75%) produced positive radiographic findings (erosions, flattening, osteophytes and surface irregularities). 3 subjects (6%) produce no such findings and hence Negative. In total of 8 subjects in the control group, 3 subjects (37.5%) produced positive findings compared to 5 subjects (62.5%) produce negative findings. In the total of 12 study subjects, 6 subjects (50%) produced Positive CT findings like Focal sclerosis, Osteophytes, Erosions and Flattening. And 6 subjects (50%) produced no such findings and their CT findings are Normal or Negative.

The control group did not show any findings ie all the subjects (100%) are negative. From the total subjects of 20, **14** subjects (70%) produced **Negative** results for CT and 8 subjects (40%) negative for conventional radiographs, where as individually **6** subjects (30%) are positive for CT and 12 subjects (60%) are positive for conventional radiography.

7 subjects out of 8 in the control group(87.5%) produced **Negative** for CT and 5 out of 8 (62.5%) produce Negative for Conventional radiographic procedures.

1 out of 8 (12.5%) produces positivity for CT and 3 out of 8(37.5%) positivity for conventional radiographs.

6 out of 12 study group with symptoms of TMD(50%) produces positive result for CT and another 6 (50%) Negativity for CT. 9 out of 12 (75%)

produces positivity for Conventional radiographs and 3 subjects (25%) shows negativity for conventional radiographs

CONCLUSION:

In conclusion, the clinical findings as suggested by RDC, alone were not sufficient for diagnosis of temporomandibular joint disorders.

The existing clinical criteria for diagnosis of TMD's are proved insufficient to diagnose Disk displacements which needs further re evaluation and revised with modern imaging techniques like CBCT, TACT.

The present study depicts Conventional radiographic procedures found to be Golden Standard among other modalities in ruling out bony alterations caused due to TMD's. And they are made as a basic preliminary imaging modality which predicts the need for further evaluation by CT and MRI to rule out Disk component of the joint.