

**SPIRAL COMPUTED TOMOGRAPHIC  
SCAN AND NEUROPHYSIOLOGIC  
EVALUATION  
OF TEMPOROMANDIBULAR JOINT  
AND THE ASSOCIATED MUSCLES  
IN  
RHEUMATOID ARTHRITIS PATIENTS**

**A Thesis  
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## **ABSTRACT**

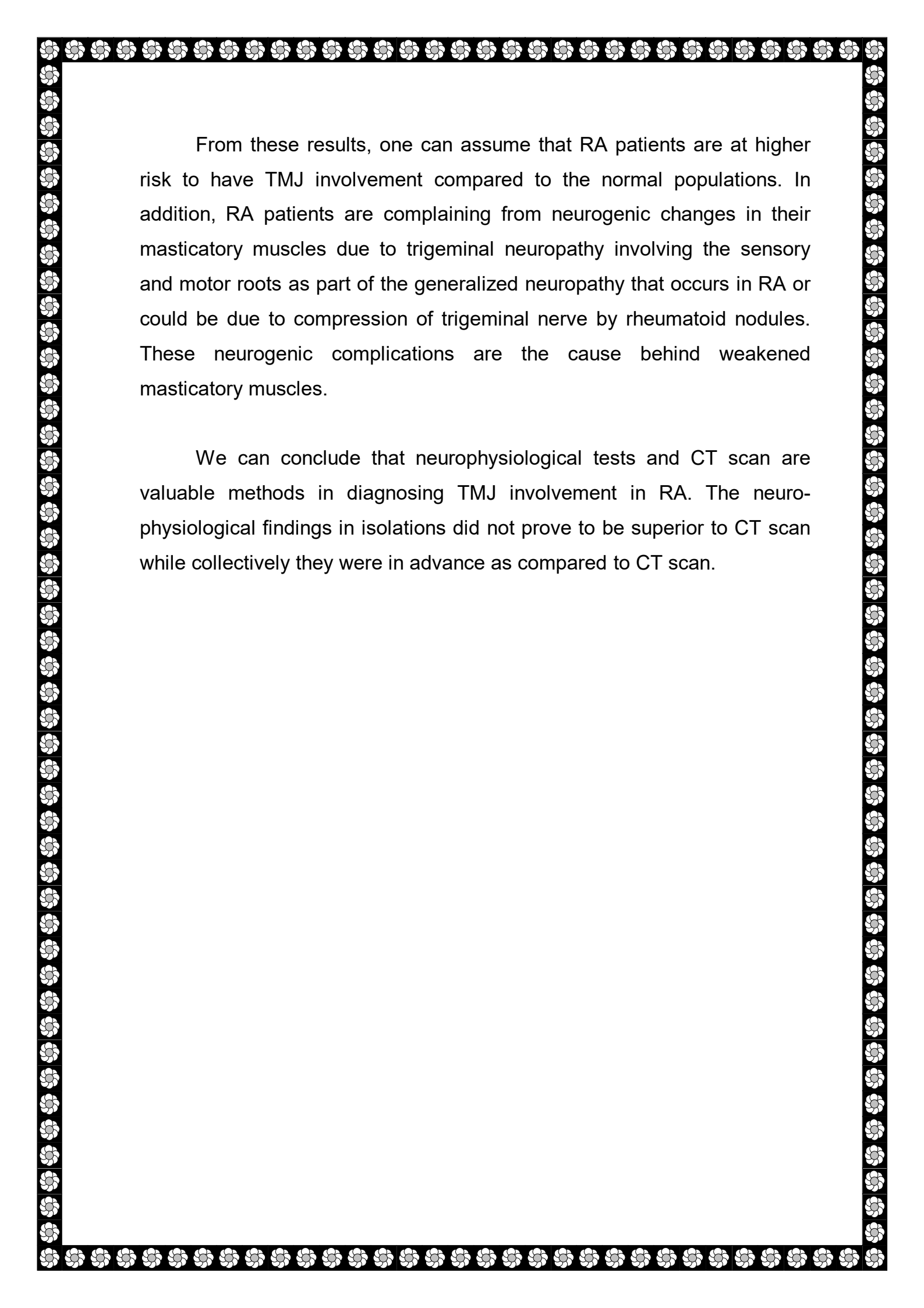
Rheumatoid arthritis is a poly-articular disease affecting the joints of extremities in particular. There is a progressive involvement of the joints over along period. The pattern tends to be bilateral and symmetrical. The involvement of the TMJ in RA is a subject, which received scant attention in our country. Thus, the intention of this investigations was to study the involvement of those patients with RA ,in addition to the effect on the muscles of mastications. .

Forty-two patients and thirty age-matched control subjects enrolled in this study. RA patients examined clinically for pain, tenderness, presence of crepitus and limitation of mouth opening. Thirty-seven patients underwent CT scan for their TMJ. EMG study was done for 30 patients including conventional EMG, power spectral analysis of masticatory muscles and blink reflex.

The results of this study showed that pain in the region of TMJ and feeling of stiffness of jaws on awaking is the most predominant symptoms followed by crepitus while pain on movement of the joint and difficulty in opening the mouth wide, were the least.

Erosion, decrease in the intra-articular space and flattening of the condyle are the most frequent CT scan findings in the TMJ of RA patients.

Neurophysiological study revealed that on conventional EMG, there was reduced interference pattern, wide duration and high amplitude polyphasic potentials. The power spectral analysis showed a significant decrement of MPF and RMS voltage values in the patient group. The blink reflex study demonstrates a significant delay in the latencies of all components (R1, iR2, and cR2).



From these results, one can assume that RA patients are at higher risk to have TMJ involvement compared to the normal populations. In addition, RA patients are complaining from neurogenic changes in their masticatory muscles due to trigeminal neuropathy involving the sensory and motor roots as part of the generalized neuropathy that occurs in RA or could be due to compression of trigeminal nerve by rheumatoid nodules. These neurogenic complications are the cause behind weakened masticatory muscles.

We can conclude that neurophysiological tests and CT scan are valuable methods in diagnosing TMJ involvement in RA. The neurophysiological findings in isolations did not prove to be superior to CT scan while collectively they were in advance as compared to CT scan.