Correlation Between Cervical Spine and Temporomandibular Disorders

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FROM ABSTRACT:

Neuroanatomical interconnections and neurophysiological relationships between the orofacial area and the cervical spine have been documented.

The present single-blind study was aimed at screening possible correlations between clinical signs of temporomandibular disorders (TMD) and cervical spine disorders.

Thirty-one consecutive patients with symptoms of TMD and 30 controls underwent a standardised clinical examination of the masticatory system, evaluating range of motion of the mandible, temporomandibular joint (TMJ) function and pain of the TMJ and masticatory muscles.

Afterwards subjects were referred for clinical examination of the cervical spine, evaluating segmental limitations, tender points upon palpation of the muscles, hyperalgesia and hypermobility.

The results indicated that segmental limitations (especially at the Occiput-C3 levels) and tender points (especially in the m. sternocleidomastoideus and m. trapezius) are significantly more present in patients than in controls.

THESE AUTHORS ALSO NOTE:

“Interrelationships between the orofacial area and the cervical spine have been documented both at the neuroanatomical interconnections and neurophysiological levels.”

Sensory information from the cervical spine converges with trigeminal afferents in the trigeminal spinal nucleus; these trigeminal fibers descend at least to C2-C3 and perhaps as low as C6.

The anterior sensory roots of C-2 and C-3 innervate parts of the face and especially the mandibular angle. [●Picture●]

Clinicians commonly report the coexistence of jaw pain and neck pain.
Several prior studies have documented a relationship between jaw function/pain and the mobility and tenderness of the cervical spine.

This study evaluated and compared signs and symptoms of TMD and craniocervical dysfunction using a controlled, single-blind design. The authors evaluated 31 consecutive patients with known TMD and 30 asymptomatic (jaw and neck) controls.

The TMJ was evaluated with standard range-of-motion, pain and tenderness.

The cervical spine was evaluated for segmental passive mobility, skin rolling, and muscle tenderness and trigger points.

RESULTS:

Significantly more segmental reduced motion was noted at the occiput-C1 and C2-C3, with muscle tenderness, in the patient group as compared to the control group. **[Important]**

DISCUSSION:

“It was apparent that TMD patients exhibit significantly more segmental limitations, especially in the high cervical region, and also report significantly more tender points upon palpation of the shoulder and neck muscles.”

“One could consider the temporomandibular system and the cervical spine as a functional entity.” **[Important]**

Also, “concomitant pain and dysfunction of the cervical spine could also result from changes in head posture, linked to a dysfunctional masticatory system.”

“From a neurophysiological point of view, the extensive convergence of different types of afferent input on the trigeminal nuclei, and more recent findings on neuronal plasticity, might account for the observed findings.”

Several “previous studies focusing on TMD and cervical spine dysfunction, although using a different design, came to similar conclusions as the present one.”

The results from this study show “significantly more limitations [segmental range-of-motion] were present in the patient group, especially in the upper cervical region (occiput – C3).”
KEY POINTS FROM DAN MURPHY

1) There are neuroanatomical interconnections and neurophysiological relationships between the cervical spine and the jaw.

2) Sensory information from the cervical spine converges with trigeminal afferents in the trigeminal spinal nucleus; these trigeminal fibers descend at least to C2-C3 and perhaps as low as C6.

3) Clinicians commonly report the coexistence of jaw pain and neck pain.

4) TMD patients have significantly reduced segmental range-of-motion occiput-C1-C2-C3.

5) The “temporomandibular system and the cervical spine function as a single entity.” [Important]

6) Cervical spine pain and dysfunction could result from changes in head posture, secondary to a dysfunctional masticatory system.