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## Neuroscientific basis of the temporomandibular joint disorders syndrome

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To detect whether there were activation of motor neurons of the trigeminal motor nucleus (Vmo), facial nucleus (VII), hypoglossal (XII), ambiguous (Amb) nucleus and spinal nucleus of accessory nerve (SNA) in rats recieved unilateral anterior corssbite (UAC) via the connections of trigeminal mesencephalic nucleus (Vme) with VII, XII, Amb and SNA. Cholera toxin B subunit (CTb) was injected into the inferior alveolar nerve to help identify the central axon terminals of Vme neurons in the Vmo. Biotinylated dextranamine (BDA) was injected into the Vmes to help identify the central axon terminals of Vme neurons around the motor neurons of VII, XII, Amb and SNA. The protein expression levels of vesicular glutamate transporter 1 (VGLUT1) in neurons in Vmo, VII, XII, Amb and SNA and the protein level of acetylcholinesterase (AChE), an indicator of the motor activation level, in masseter, stapedius, lingualis, pharyngeal muscle and sternocleidomastoid muscle were compared between UAC and control rats. In CTb-treated rats, many CTb-labeled cell bodies and endings were identified in the Vme and in the Vmo, respectively. In BDA-treated rats, many BDA-labeled cell-bodies were identified in Vme and terminals in the Vmo, VII, XII, Amb and SNA, respectively. UAC rats showed higher VGLUT1 protein expression in the detected nucleus and higher AChE protein level in the detected muscles, except pharyngeal muscle. These findings proposed a central mechanism for the syndrome-like TMD symptoms that was the dental stimulated Vme activated motors behaviors via Vme-Vmo/VII/XII/Amb/SNA circuit.

## Biography

Meiqing Wang has completed her PhD from Fourth Military Medical University (FMMU). She was the Director of the dept. Oral Anatomy and Physiology and TMJ in College of Stomatology, FMMU during 1997-2014 and is the Vice-Chair, Society of TMJ and Occlusion, Chinese Stomatology Association (CSA). She has published more than 50 papers in reputed journals and is serving as an Editorial Board Member of *J Dent Res*, *J Bone Miner Res*, *J Oral Rehabil* and *CRANIO*. She has treated over 10000 patients with temporomandibular joint problems. She has supervised 51 graduate students to get Master or Doctorial Degree.

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