The Many Faces of Persistent Orofacial Muscle Pain

The newly published DC/TMD[1] is an important milestone in the quest for evidenced-based and specific criteria for TMD problems. It represents a many-years-long achievement with contributions from various international scientists and clinicians. There have been several and well-justified changes in the muscle pain diagnoses since the RDC/TMD criteria.[2] For example, the myofascial pain with limited opening has been abandoned, because it did not seem to be valuable to differentiate from myofascial pain. This is a good example of simplification of a classification system. In the new DC/TMD system, we now have four muscle pain-related diagnoses: myalgia, local myalgia, myofascial pain with spreading, and myofascial pain with referrals. The diagnoses all flow logically from the history and examination and fit into the diagnostic algorithms in a non-overlapping manner. It should be noted, however, that local myalgia and myofascial pain with spreading, in contrast to all other diagnoses in the DC/TMD, do not have established measures of validity, ie, at present the sensitivity and specificity are not known. Nevertheless, it was decided to add both additional muscle diagnoses to the DC/TMD as to line up the system with the recently published expanded DC/TMD taxonomy.[3] It was argued that it could be assumed that these values would be similar to the good sensitivity and specificity for myalgia and myofascial pain with referral. Although this is a valid reasoning, it is important to elaborate on the fact that the distinction between the four muscle pain-related diagnoses may not be clear from a mechanistic point of view or from a management point of view. While it may be plausible that local myalgia could evolve into myofascial pain with spreading and on to myofascial pain with referral, there is currently no evidence to support such a hypothesis. An important rule in the creation of the RDC/TMD was that the diagnosis should not attempt to incorporate any yet unsubstantiated mechanisms of action. We recognize that spreading of muscle pain could be related to the observation from animal studies of increases in receptive fields of second-order neurons in the trigeminal brainstem sensory nuclear complex and that referral of pain could be related to central convergence of nociceptive afferent inputs onto second-order neurons,[4,5] in addition to central sensitization and changes in descending inhibitory pathways.[6,7] However, we also know from human experimental studies[7,8] that some subjects exposed to painful injections, eg, of hypertonic saline, into the masseter muscle may experience a spread of the pain within the boundaries of the injected muscle, but also that other subjects with the exact same type of painful stimulation of the masseter muscle may experience referred pains to the teeth, temporomandibular joint, or temple. This simple observation with acute muscle pain calls for caution because both types of responses (spreading/referrals) could simply be epiphenomena of deep noxious inputs. Although there are operationalized criteria for a myofascial pain with spreading and myofascial pain with referrals, it may be an arbitrary and premature distinction and at least associated with potential difficulties for the individual to clearly define one versus the other response and location. We may also be skeptical that four muscle pain-related diagnoses will be implemented in daily clinical practice, which was indeed the original intention with DC/TMD.

All in all, even recognizing the DC/TMD paper as a milestone, we felt the need to voice the above outlined concern related to the DC/TMD. Clearly, there will be a continued need to further refine and develop the DC/TMD, and in particular to start to focus on the underlying mechanisms of action for pain in the muscles.

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Authors' Response

Given the large number of coauthors of the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) paper,[1] which included some of the coauthors of the Letter to which we are responding, the response below is from the co-lead authors of this paper and the press releases associated with the paper's publication.

We thank our coauthors, Dr Svensson and colleagues, for calling increased attention to and appropriately elaborating on several issues pertaining to the set of muscle pain diagnoses that were briefly discussed in the DC/TMD paper.[1] As Svensson et al indicate, two of the muscle pain disorders, myalgia and myofascial pain with referral, exhibit excellent reliability and criterion validity based on currently available data. For clarity, it should be noted that in the DC/TMD publication, myalgia is subdivided into three subdiagnoses: local myalgia, myofascial pain (with "spreading" pain being its hallmark clinical manifestation), and myofascial pain with referral. Although the diagnoses of local myalgia and myofascial pain (with spreading) do not have estimates of sensitivity and specificity (ie, criterion validity), they do have content validity (ie, developed by experts in the field after reviewing the literature as it existed then). It is noteworthy that when the paper outlining the Research Diagnostic Criteria for TMD (RDC/TMD) was published in 1992, none of the Axis I diagnostic algorithms had known estimates of sensitivity and specificity, but they had content validity.[2] Yet the RDC/TMD served the community well until it was shown to have insufficient criterion validity[3] and was replaced by the current DC/TMD. Although the reliability and criterion validity of local myalgia and myofascial pain (with spreading) are unknown, the RDC/TMD represented a precedent for including diagnoses with only content validity in the interest of moving the science forward.

Furthermore, we do not anticipate that the reliability and criterion validity will differ for these two subdiagnoses of local myalgia and myofascial pain (with spreading), relative to myofascial pain with referral, in that it is a matter of degree, not type, in how diagnostic criteria would be staged for distinguishing theses three subdiagnoses of myalgia. Finally, in both the DC/TMD paper and another paper[4] on the topic of expanding the taxonomy of the diagnostic criteria for TMD, the discussion section of each publication emphasized that the "source document" for the three subdiagnoses of myalgia (ie, local myalgia, myofascial pain, and myofascial pain with referral) would be the DC/TMD publication, and this required presenting all four diagnostic algorithms in the DC/TMD paper.

As for clinical use of the DC/TMD, we fully anticipate that using only the myalgia diagnosis is typically sufficient for clinical use and we also anticipate that most clinicians will at this time focus on this diagnosis only and not break it down into its three subgroup diagnoses. We do however hope that clinicians, when looking for sources of non-odontogenic tooth pain, will consider using myofascial pain with referral to rule out a muscle cause for this complaint. Since the DC/TMD was intended for clinical and research purposes, researchers can use the DC/TMD to investigate whether there is any difference between these three subdiagnoses from a "mechanistic point of view or from a management point of view." If the mechanisms or clinical utility of the three subdivisions of myalgia prove to neither be distinguishable nor useful for differentiating types of treatment, then the DC/TMD can be simplified accordingly.

It is clear to us from this discussion that the DC/TMD is accomplishing its goal of being useful for clinical and research purposes, in that the letter from our co-authors is pointing to important areas of discussion. We encourage our colleagues in the field to strongly consider the comments from Svensson et al and to recognize the important research hypotheses they call attention to. We note that the DC/TMD offers far more hypotheses embedded in that taxonomic system which warrant discussion—and further research. We completely agree with the comment of Svensson et al, above, that "there will be a continued need to further refine and develop the DC/TMD, and in particular to start focus on the underlying mechanisms of action for pain in the muscles."

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