TMJ pathology: is it real?

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Clinical scenario: can poor athletic performance or behavioural problems, such as quidding, headshaking or dysphagia, be attributed to temporomandibular joint disorder (TMJ)?

P (population) = adult horses with poor-/under-performance or behavioural problems and no other localising signs

I (intervention/indicator) = clinical history and diagnostic testing (diagnostic imaging, arthrocentesis or intrasynovial anaesthesia, surgery)

C (comparator/control) = N/A

O (outcome) = diagnosis of poor performance attributable to the TMJ

Search Strategy

PubMed, search date 1 May 2014: ('temporomandibular joint' [MeSH Terms] OR ('temporomandibular' [All Fields] AND 'joint' [All Fields]) OR 'temporomandibular joint' [All Fields]) AND ('horse' [All Fields] OR 'equine' [All Fields]).

Quantity of Evidence

PubMed result: 32 papers, including 12 single case reports or case series, 11 experimental studies of imaging (radiography, computed tomography, ultrasonography, magnetic resonance imaging), diagnostic (arthrocentesis) or surgical (arthroscopic) techniques (8 such studies used only cadaveric material, 7 used healthy live horses and 4 studies used both cadavers and live horses), 4 editorials or invited reviews, 2 experimental kinematic studies (1 technique validation and 1 measuring impact of dietary change), 2 studies of molecular biology (1 study of the correlation of TMJ cytokine profiles with dental pathology scores, and 1 of the cytokine response of TMJ compared to metarcarpophalangeal joints).

Quality of Evidence

An absence of systemic reviews, controlled clinical trials, case–control studies or large case series means that definitive evidence of TMJ disorder in horses is limited. This search used broad search terms, and only found mention of TMJ disorder amongst editorials and review articles. The experimental studies of diagnostic approaches are robust and provide good evidence for the benefits of advanced imaging modalities for this complex structure.

Can this evidence be applied in my case population/clinical scenario?

Anatomical studies have provided robust data for the application of a variety of diagnostic and surgical techniques, including radiography (Townsend et al. 2009), delayed phase nuclear scintigraphy (Weller et al. 1999a), computed tomography (CT: Rosenstein et al. 2001; Devine et al. 2005; Nagy and Simhofer 2006) and ultrasonography (Weller et al. 1999b; Rodríguez et al. 2007), but these have primarily been applied to the management of fractures (Devine et al. 2005), luxations (Hurtig et al. 1984; Hardy and Shiroma 1991), and septic and nonseptic arthritis (Carmalt and Wilson 2005; Nagy and Simhofer 2006), rather than the more vague TMJ disorder.

Experimental evidence regarding the cytokine response in the TMJ indicates that this joint may show different cytokine dynamics to other diarthrodial joints (Carmalt et al. 2011), and does not definitively support the possibility of putative TMJ disorder contributing to the cluster of vague clinical signs listed. Dental pathology has been postulated as one cause of TMJ disorder; however, TMJ articular pro-inflammatory cytokine concentrations did not correlate with age and dental pathology score in one study (Carmalt et al. 2006).

Clinical message

Confirmed reports of TMJ disorder in horses are absent, but this may be due to the diagnostic challenge that results from nonspecific signs. It is clear from this search that diagnostic techniques have progressed and should allow more specific diagnoses to be made. It is hoped that robust (multi-centre) case series will follow.

Author's declaration of interests

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