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International framework for examination of the cervical region for potential of Cervical Arterial Dysfunction prior to Orthopaedic Manual Therapy intervention

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ABSTRACT

A consensus clinical reasoning framework for best practice for the examination of the cervical spine region has been developed through an iterative consultative process with experts and manual physical therapy organisations. The framework was approved by the 22 member countries of the International Federation of Orthopaedic Manipulative Physical Therapists (October 2012). The purpose of the framework is to provide guidance to clinicians for the assessment of the cervical region for potential of Cervical Arterial Dysfunction in advance of planned management (inclusive of manual therapy and exercise interventions). The best, most recent scientific evidence is combined with international expert opinion, and is presented with the intention to be informative, but not prescriptive; and therefore as an aid to the clinician's clinical reasoning. Important underlying principles of the framework are that 1] although presentations and adverse events of Cervical Arterial Dysfunction are rare, it is a potentially serious condition and needs to be considered in musculoskeletal assessment; 2] manual therapists cannot rely on the results of one clinical test to draw conclusions as to the presence or risk of Cervical Arterial Dysfunction; and 3] a clinically reasoned understanding of the patient's presentation, including a risk:benefit analysis, following an informed, planned and individualised assessment, is essential for recognition of this condition and for safe manual therapy practice in the cervical region. Clinicians should also be cognisant of jurisdictionally specific requirements and obligations, particularly related to patient informed consent, when intending to use manual therapy in the cervical region.

1. Introduction

Cervical Arterial Dysfunction (CAD) in patients presenting with neck complaints is a rare event, but a critical consideration as part of a comprehensive Orthopaedic Manual Therapy (OMT) assessment. Vascular pathologies, such as arterial dissection, are generally recognisable if appropriate questions are asked, data is interpreted correctly during the patient history, and if the physical examination is adapted to test a potential vasculogenic diagnostic hypothesis. An important underlying principle of the patient assessment is that physical therapists cannot rely on the results of one test to draw conclusions regarding the presence or risk of CAD, and therefore development of a clinically reasoned understanding of the patient's presentation, including risk:benefit analysis, following an informed, planned and individualised assessment is essential. There are multiple sources of information available from the patient assessment that can assist clinical reasoning and the confidence of estimating the probability of the patient presenting with or developing CAD. The provision of specific, prescriptive guidance is limited by the inadequacies of the current evidence base (that will progress with ongoing research), and therefore manual therapists need to critically appraise the literature and combine this with their own clinical experience and patient preferences to facilitate optimal clinical decision-making for each patient individually.

In 2008, the International Federation of Orthopaedic Manipulative Physical Therapists (IFOMPT) convened an expert working

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group to create a resource for best practice in cervical region examination in individuals with neck complaints that may present with CAD or be at risk of developing CAD. The vision statement of IFOMPT is the "*world-wide promotion of excellence and unity in clinical and academic standards for manual/musculoskeletal physiotherapists*", reflecting an international organisation aiming to promote and maintain high standards of specialist education and clinical practice, promote and facilitate evidence based practice, communicate widely the purpose and level of the specialisation, and to work towards international unity/conformity of postgraduate educational standards of practice. As of 2013, IFOMPT consists of 22 Member Organisations (MOs)/countries meeting IFOMPT's documented standards in postgraduate education in OMT and 11 Registered Interest Groups (RIGs) aspiring to the same.

The aim of the framework development was to guide clinical reasoning for the assessment of the cervical spine region for potential of CAD prior to planned OMT interventions focussing on techniques occurring in end range positions, notably during passive joint mobilisation, exercise, and high velocity thrust manipulation interventions. The framework is designed to be reflective of best practice, intending to place risk in an appropriate context that is informed by the available evidence. In this context, the framework considers both ischaemic and non-ischaemic CAD presentations to identify risk, prior to any overt symptoms and signs in a patient presenting for cervical management. The framework is designed to be informative, not prescriptive and is intended to enhance the clinician's clinical reasoning as part of the process of patient assessment and management. The framework is not complex, but it is flexible; allowing the clinician to apply it based on an individual patient's presentation and preferences, thereby facilitating patient-centred practice.

2. Methods

2.1. Project group

An international collaboration of the Standards Committee of IFOMPT and invited international subject experts.

2.2. Consensus method

2.2.1. Stage 1

The issues central to the framework were initially explored at the World Confederation for Physical Therapy Congress (June 2007, Vancouver). An IFOMPT coordinated session focused on vertebrobasilar insufficiency, an issue that had generated many questions from MOs of IFOMPT and individual physical therapists. The session generated robust discussion related to pre-manipulative screening in the cervical spine, and as a result, the IFOMPT Standards Committee was asked to take the key issues forward.

A descriptive survey exploring current practice in cervical spine pre-manipulative screening and manipulation technique applications was sent to all MOs and RIGs of IFOMPT. The findings of this survey have been published elsewhere (Carlesso and Rivett, 2011) and informed this framework.

2.2.2. Stage 2

The structure and content of the framework was further informed by a consensus forum held at the IFOMPT Conference in Rotterdam (June 2008) where nominated experts from each MO of IFOMPT were invited to participate. Findings from the survey were presented to facilitate discussion. The forum concluded that an international framework was needed and agreed its constituent sections, with the following guiding principles agreed to inform its development:

- To use existing MO documents, specifically Rivett et al. (2006) and Kerry et al. (2007) which were widely adopted by MOs.
- To consider pre-manipulative provocative positional tests and craniovertebral ligament testing.
- To ensure that recommendations regarding informed consent be sufficiently flexible for use in different jurisdictions (so as to be inclusive of all MOs/countries).
- Preferred considerations for manipulative (high velocity thrust) practices be included to address the identified variability of practice.
- An IFOMPT endorsed framework must be: reflective of best practice and research, flexible and simple in application, suitable for individual MO jurisdictions, and an informative aid to patient-centred clinical reasoning, but not prescriptive.

As a consequence of the discussion, the framework moved beyond the previous issues of vertebrobasilar insufficiency to CAD, and beyond a focus on manipulation to planned OMT interventions encompassing a range of treatment approaches.

2.2.3. Stage 3

Drafts of the framework were subsequently developed through an iterative consultative process with experts in the field and all MOs of IFOMPT.

2.3. Definition of consensus

Consensus was defined as approval of the framework document by all of the 22 member countries/MOs of IFOMPT.

3. Findings

Consensus and approval of the framework by the 22 MOs of IFOMPT was achieved in October 2012 at the IFOMPT Conference in Quebec City. The framework is based on best available evidence at the time of writing, and is to be used in conjunction with the IFOMPT Standards (IFOMPT, 2008) and with the key literature sources identified. Central to the framework are sound clinical reasoning and evidence based practice. The framework is divided into key sections which are outlined below. The complete framework is available at: www.ifompt.com/ReportsDocuments.html

3.1. Context to assessment of the cervical region/clinical reasoning as a framework

The concept of clinical reasoning underpins the framework (Jones and Rivett, 2004). The cognitive and metacognitive processes of reasoning, using evidence-informed knowledge within OMT are the central components of expertise in the practice of OMT (Rushton and Lindsay, 2010). The framework requires effectiveness in the clinical reasoning competencies detailed in the IFOMPT Standards Document (2008) to enable effective, efficient and safe patient management. It has been shown that previously reported adverse events involving CAD and following application of cervical manipulation, could have been avoided if a more accurate and thorough clinical reasoning process had been used by the clinician (Rivett, 2004).

3.2. Patient history

The patient history is essential to establish and test hypotheses related to potential adverse events of OMT, and its importance in clinical reasoning for example, for the assessment of CAD and its associated risk factors has been well reported (Sweeney and Doody, 2010). There is limited diagnostic utility data related to many