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ORIGINAL ARTICLE

Usefulness of biomechanical assessment in determining post-traumatic neck pain sequelae^{☆,☆☆}



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Abstract

Introduction: Post-traumatic neck pain is important in the context of liability compensation. In addition, legislative changes in 2015 give greater relevance to investigations. The aim of this study is to evaluate the usefulness of biomechanical assessment tests in assessing post-traumatic neck pain due to traffic accident by medical examiners, and to analyse the influence of these tests in determining sequelae.

Materials and methods: A descriptive study was conducted with a sample of people with neck pain after a traffic accident who were undergoing forensic assessment. Each medical examiner participating in the study selected cases they believed would benefit from a more complete assessment, conducted a pre-assessment of sequelae, referred cases for biomechanical assessment and, after receiving the results, assessed sequelae and the usefulness of the test. The initial and final assessments of sequelae were compared, taking into account the outcome of the biomechanical testing. The usefulness of the test was also described.

Results: A total of 59 cases was included, 51 of which accepted the testing. Results showed normal overall functionality (61%), slightly altered functionality (19%), altered functionality (12%) and no collaboration (8%). There were differences between the pre-evaluation of sequelae and the final assessment, with differences being less in the cases of normal functionality, no collaboration and rejection of testing, and greater in the cases of impaired functionality. A total of 98% of the test were useful to the participating medical examiners.

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PALABRAS CLAVE

Medicina Forense;
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Valoración del dolor;
Posturografía;
Dinamometría;
Fotogrametría

Conclusions: Biomechanical assessment test were useful to medical examiners in assessing post-traumatic neck pain sequelae secondary to a traffic accident and helped to rate the magnitude of the sequelae.

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Utilidad de la valoración biomecánica en la determinación de secuelas por cervicalgia postraumática
Resumen

Introducción: La cervicalgia postraumática es importante en el contexto de las indemnizaciones por responsabilidad civil. Además, los cambios legislativos de 2015 dan mayor relevancia a las pruebas complementarias. El objetivo de este estudio es evaluar la utilidad de las pruebas de valoración biomecánica en la valoración de la cervicalgia postraumática por accidente de circulación por parte del médico forense y analizar su influencia en la determinación de secuelas.

Material y método: Se realizó un estudio descriptivo con una muestra de personas con cervicalgia por accidente de circulación en proceso de valoración en el Servicio de Clínica Médico-Forense. Cada médico forense participante en la investigación seleccionó casos que se beneficiarían de un mayor estudio, realizó una preevaluación de secuelas, los remitió para valoración biomecánica y, tras conocer los resultados, valoró las secuelas y la utilidad de la prueba. Se comparó la valoración inicial y final de secuelas en función del resultado de las pruebas biomecánicas y se describió su utilidad.

Resultados: Se incluyeron 59 casos, 51 de los cuales accedieron a realizarse las pruebas. Mostraron: funcionalidad global normal (61%), levemente alterada (19%), alterada (12%) y no colaboración (8%). Hubo diferencias entre la preevaluación de secuelas y la valoración final, reduciéndose en los casos de funcionalidad normal, no colaboración y rechazo de prueba, y aumentando en los casos de funcionalidad alterada. El 98% de las pruebas resultaron útiles para los médicos participantes.

Conclusiones: Las pruebas de valoración biomecánica fueron útiles para los médicos forenses en la valoración de secuelas de la cervicalgia postraumática por accidente de circulación y ayudaron a graduar la magnitud de las secuelas.

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Introduction

Minor cervical injuries in traffic accidents are extremely important due to their frequency and their economic importance in the context of civil liability claims, both in the legislative framework up to 2015¹ and in the one that came into force as of January 2016.² According to a study by the MAPFRE Foundation³ in Spain, this pathology is responsible for 50% of personal injuries caused by traffic accidents. According to Garamendi and Landa (data from Medical-Forensic Clinical Services)⁴ it is involved in up to 50% of the assessments requested for crimes or misdemeanours and approximately 70% in the context of a traffic accident. In the references, there are very high percentages of sequelae in the injuries derived from whiplash (above 64%), and these are fundamentally subjective (75%) and with wide variability depending on the medical expert who performs the assessment.⁵ The estimated incidence of exaggeration of critical symptoms in the cervical spine could

be around 60% in cervical sprains and about 50% in chronic cervicalgia.⁶

The assessment of post-traumatic cervicalgia is complex at the diagnostic level due to the lack of specific complementary tests that allow the injury or its functional repercussion to be objectified. Its evolutionary course is often torpid with a tendency to be chronic and even depends on psychosocial factors such as initial anxiety,⁷ fear of pain⁸ or cultural environment.⁹ Lastly, the opportunity for secondary gain linked to compensation could be an additional handicap for the assessment of bodily harm in the field of forensic and legal medicine. Although it should also be noted that, according to the systematic review by Spearing and Connelly from 2011,¹⁰ there is no evidence of an association between injury compensation and poor health outcomes in people with whiplash.

In any case, any tool or method that improves the accuracy in the evaluation of this pathology and/or its sequelae would have a great professional, socio-economic and even

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