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How reliable is the Spanish bodily harm assessment scale?

Lucía Ordóñez-Mayán [a], Carlos Represas [a], Xoan Miguéns [b], María Sol Rodríguez-Calvo [a, c], Manuel Febrero-Bande [d], José Ignacio Muñoz-Barús [a, c, *]

[a] Institute of Forensic Sciences University of Santiago de Compostela, Spain
[b] Rehabilitation Service, Complexo Piñor Hospital University Hospital of Ourense, Spain
[c] Department of Pathology and Forensic Sciences, University of Santiago de Compostela, Spain
[d] Department of Statistics and Operations Research, University of Santiago de Compostela, Spain

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ABSTRACT

The use of scales to quantify or qualify bodily harm resulting from an unintentional car accident has been mandatory in Spain since 1995 and compensation for personal injuries resulting from a traffic accident is calculated according to a legal ruling established by Royal Decree 8/2004 (RDL). This present study assesses the reliability of the scale.

Agreement between the evaluations for the same patient by 24 qualified observers following the Royal Decree 8/2004 was measured using the Kappa index. The variables assessed were the days of hospitalization, impeditive days, non impeditive days and the functional and aesthetic sequelae.

The application of the Fleiss Kappa index obtained a result of 0.37, indicating a "fair agreement" according to the rating scale proposed by Landis and Koch.

This study demonstrates the unreliability of the Spanish medical scale for the assessment of injury as described in the RDL 8/2004. The scale should adopt the measurement systems and clinical classifications of outcomes such as the ASIA, SCI scale or the Daniels scale of neurological injury and allow scientific discussion of the findings of the report. The resulting quantitative value should operate as a reliable indicator of a specific quality of the damage.

1. Introduction

The repercussions of an accident are of a varying nature and although it is not overly complex to calculate the direct economic impact[1,2] such as loss of earnings or cost of present and future medical expenses, difficulties arise when dealing with non-economic consequences such as pain, physical damage and disfigurement. These latter problems were recognised by initiatives of the European Union (EU) at the turn of the last century and, since then, a constant concern of research into bodily harm has been to seek a method capable of quantifying the loss of a person's biological patrimony or anatomic-functional capacity. The greatest complexity in this field lies in achieving a methodology which can assess the decline in physical and psychological integrity of the individual within a system that can quantify the damage suffered by that most basic of all human values: one's life.

The use of scales to quantify or qualify bodily harm is common practice and is frequently used to assess legal and social aspects of practical importance. In Spain, the use of such scales for medico-legal assessment of personal injury resulting from an unintentional car accident has been mandatory since 1995. Currently, compensation for personal injuries resulting from a traffic accident is calculated according to a legal ruling established by Royal Decree 8/2004 (RDL).[3]

The decree develops a series of explanatory rules with possible consequential damages and is set out in six tables, where Tables 2 and 4–6 are of forensic importance and require the intervention of a physician. The tables establish values for death, days required for healing or stabilization, physiological sequelae, permanent aesthetic damage and the impact of these on the working life or usual occupation of the injured person.

According to the RDL, the days of healing should extend until lesions are stabilized and distinguishes between days of hospitalisation, impeditive days (when habitual activities are impeded) and

* Corresponding author. Institute of Forensic Sciences University of Santiago de Compostela, 15782 Santiago de Compostela, Spain. Tel.: +34 881812216; fax: +34 881812459.
E-mail address: joseignacio.munoz.barus@usc.es (J.I. Muñoz-Barús).

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non-impeditive days (when habitual activities are not impeded). Although the decree does not specify whether impeditive days should be equated with the granting of sick-leave, from a medico-legal point of view it is accepted that such days are those which impose major constraints on the ability of a patient to perform the basic activities of daily living such as bathing, dressing, eating and mobility.[4,5] The RDL divides the sequelae into nine sections, and the first 8 sequelae are linked to a sliding scale from a minimum of 1 point to 100 points. If the same case has more than one functional sequel, a corrective formula, the formula of concurrent disabilities[3] or the Balthazar formula, is applied so that the score for concurrent sequelae does not exceed 100 points. Chapter 9 is specific for aesthetic detriment independently of anatomic-functional damage. Six categories are proposed, to each of which a qualifier and a score is assigned with a range from 1 to 50 points. Assessment criteria are used for both the general rules of the Act well as for each of the sequelae.

Since this Act came into force there has been an exaggerated disparity in medical-legal evaluation in the courts.[4,5] Although no similar studies have been found, there are reports in the literature of forensic expert deviations of around 5% in evaluating biological damage,[6,7] far below our preliminary observations. The need to measure the reliability of a quantitative assessment model of disability is a constant concern in the literature.[8]

The more reliable the measuring instrument (scale) used to assess, the more objective the expert model, even taking into account expected bias. The coming into force of these laws, together with subsequent modifications, has revealed a strong demand for training in this area, both from within the field of justice as well as from insurance companies. Consequently, training in this field has been offered by public universities and the University of Santiago de Compostela, through its Institute of Forensic Sciences, has developed ongoing training courses aimed at professionals in the Health Sciences. The main aim of these courses was to provide the necessary training to accredit the medical staff involved as Medico-Legal Experts in the Assessment of Bodily Damage. The courses consisted of four modules (I: Legal basis; Law of damages. II: Medico-legal basis for expert evaluation; Commonly used standards. III: Assesment in the different specialities; Supplementary tests. IV: The preparation and defence of an expert report). The teaching load is distributed over the academic year and includes training in a virtual setting and practical work outside class involving the writing up and defence of expert reports (http://www.usc.es/cptf/Formacion/CursosFormacion/Datos2009/Fc30052009-2010g.htm).

In our assessment of the reliability of the Spanish scale we measured the concordance among qualified observers using the Kappa index.[9]

2. Material and method

Twenty-four medical experts in the assessment personal injury with official recognition after passing a university course of specialization were asked to carry out an independent assessment of the same patient. To do this they were given the patient's medical history.

A 50 year old male had an accident in which the right lower extremity was crushed. The initial hospital diagnosis reported a transverse fracture of the distal third of the right femur, oblique fracture of the head of the right fibula and a contusion of about 10 inches at the distal anterior aspect of the right thigh. He underwent surgery which consisted of fixation and osteosynthesis by Gross-Kemp nail, locked distally in the femur.

After initial discharge from the orthopaedic surgery the following sequelae were established:

- A 10° anteversion at the site of the fracture
- Swelling in thigh and knee
- Extensive atrophy of quadriceps
- A limp
- Hyperextended knee instability
- Lack of muscle strength in the affected leg
- Carrier of osteosynthesis material

A year later he underwent an operation to remove the osteosynthetic material. A physical and radiographic examination and MRI tests were performed, with the following findings:

2.1. Physical examination

- Walked with obvious lameness
- Muscular atrophy
- Knee flexion of 120
- Knee instability

2.2. Simple radiograph (Fig. 1)

- Alteration in the alignment of the distal third of the femoral shaft associated with medullar sclerosis and a lytic lesion
- Bone bridge formation
- Focal periosteal reaction
- Significant degenerative change, particularly in the internal tibiofemoral space
- Posttraumatic changes in proximal fibular epiphysis

The radiologist reported that these findings are secondary to traumatic/post surgical changes and an associated osteomyelitic component could not be ruled out.

2.3. Magnetic resonance imaging of the knee

- Rupture of anterior curiae ligament
- Fibro tic changes in the medial collateral
- Degenerative meniscopathy unbroken
- Degenerative osteochondral lesions in the internal tibiofemoral compartment.
- Changes relating to fasteners introduced at femur level.

In their evaluation the experts considered the compensable aspects of RDL: days to heal injuries, days of hospitalization,

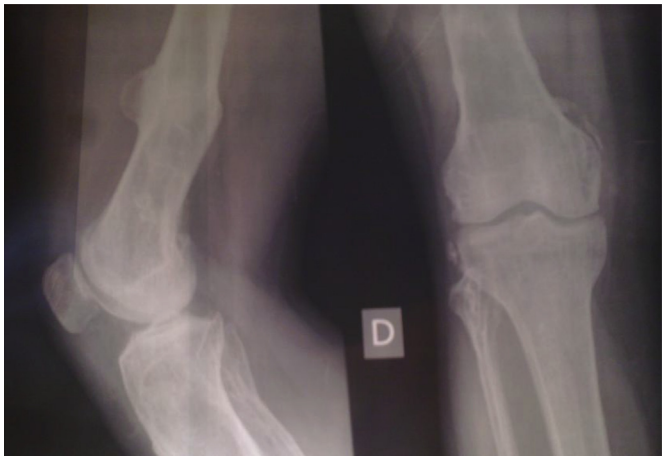

Fig. 1. Simple radiograph.