

## Symptomatic cervical disc herniation following a motor vehicle collision: return to work comparative study of workers' compensation versus personal injury insurance status

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### Abstract

**BACKGROUND CONTEXT:** Patients with approved workers' compensation injuries receive guaranteed compensation for the duration of their injury, whereas patients with personal injury claims are only compensated, if at all, at the time of a successful settlement or trial verdict at a time point distant from their injury.

**PURPOSE:** This study compares the financial impact and loss of work patterns due to a workers' compensation (WC) claim or personal injury in patients with a symptomatic cervical disc herniation resulting from a motor vehicle collision.

**STUDY DESIGN:** A prospective study of patients who were seen by a single spine specialist between 1/2/96 and 9/1/01.

**PATIENT SAMPLE:** A consecutive evaluation of 531 patients who were treated for a cervical pain syndrome caused by a motor vehicle collision.

**OUTCOME MEASURES:** Mechanism of injury and insurance type, ie, workers' compensation or personal injury, was recorded for each patient as well as treatment response and return to work patterns. The data were analyzed using the two-way Z test.

**METHODS:** All patients were managed in a similar manner with noninvasive treatment initially, followed by injections, and finally surgical intervention in those who failed conservative measures. Return to work rates and work disability were determined at either final follow-up or at the last doctor's visit before loss to follow-up.

**RESULTS:** 270 of 531 patients were diagnosed with a symptomatic one or two level disc herniation by a cervical magnetic resonance imaging scan. Fifty-four patients were insured through the workers' compensation board, and 216 reported their crash as a personal injury claim. In the WC group the work disability at 3 months follow-up revealed a cumulative 2,262 total lost days of work (average 37.1 days per person). At the point of maximal medical improvement (MMI) or 2-year follow-up, total days lost from work were 7,107 (average 131.6 days per person.) In the personal injury non-WC group, the 3-month follow-up of lost days of work was 1,093 days (average 5.1 days per person.) At 2 years follow-up, the total lost days of work were 6,206 (average 28.7 days per person.)

**CONCLUSIONS:** Participants compensated through the workers' compensation system demonstrated a significant loss of days of work as compared with injured patients who received compensation by other means. This may be a reflection of the guaranteed method of compensation afforded

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to WC patients as opposed to patients who receive no form of financial support (ie, personal injury) during the recuperative process. Further analysis as to injury severity and a stratification of non-workers' compensation reimbursement methods are needed to further improve the validity of this study. © 2005 Elsevier Inc. All rights reserved.

**Keywords:**

Cervical disc herniation; Motor vehicle collision; Workers' compensation; Private insurance; Personal injury; Days lost from work

## Introduction

The Bureau of Labor Statistics reported 1.5 million workplace injuries for the year 2001 [1]. The most common area injured is the lumbar spine. Patients who suffer a simple lumbar strain stay off work an average of 8 days. Recently, several researchers have quantified loss of work days from injuries resulting in symptomatic lumbar disc herniations [2,3]. By contrast, for patients with a symptomatic cervical disc herniation, no data exist that specifically state the average amount of work days lost.

The National Highway Traffic Safety Administration reported that 800,000 Americans incurred a whiplash injury in 2001 as a result of motor vehicle accidents [4]. Regardless of the severity of the accident; some patients are often left with persistent spinal pain that in many cases leads to loss of function and both short- and long-term disabilities.

The severity of cervical pain and length of disability are related to multiple factors. These may include the size of a disc herniation, self-reported pain severity scores, deficits noted on physical examination, the nature of the force impact, the use of restraints or air bag deployment, the pre-injury medical condition of the patient, the mental condition of the injured, and possibly the method or process of compensation after the injury.

Clinicians, third-party payers, and attorneys have often debated whether the nature of the insuring party responsible for the accident, the presence or absence of litigation, or the desire to return to work affects recovery after motor vehicle accidents. The economic result of these injuries, however, is clear. Total medical costs from spine injuries per year including time lost from work approximated 5.2 billion for 2001, and are growing [1]. The reported incidence of workers' compensation (WC) filings for permanent total disability claims in the state of Florida has increased steadily over the last several years. This problem is also being witnessed by other states and is being carefully evaluated by legislators.

In the state of Florida, patients who suffer motor vehicle accidents are overwhelmingly found to be covered by one of two insurance programs: personal injury (PI) or WC. These insurance types have been implicated by many clinicians as being detrimental to recovery from whiplash and lengthening return to work rates. This study attempts to evaluate whether the insurance status of a patient involved in a motor vehicle accident—WC or PI—significantly influences the return to work rate in those patients with a symptomatic cervical disc herniation after a motor vehicle accident.

## Materials and methods

A total of 531 patients who were referred to a single spine specialist (GJS) with a diagnosis of neck pain after a motor vehicle accident between 1/2/96 and 9/1/01 were followed in a prospective manner. Referral of the patient after injury ranged from 1 day to 4 weeks. Patients were asked to determine the number of days lost from work from the date of injury. Patients with a history or evidence of a bony or significant ligamentous injury, ie, fracture or subluxation, were not included in the study. For patients without symptom resolution after a variable time course of nonoperative treatment measures (6 weeks), magnetic resonance imaging of their cervical spine was routinely performed. Nonoperative treatment routinely included physical therapy in conjunction with nonsteroidal anti-inflammatory drugs. If magnetic resonance imaging confirmed the diagnosis of a cervical herniated disc, then after 3 months, patients with continued pain were offered a trial of cervical epidural injections. In selected cases, surgical intervention was also considered as a treatment option at this point.

Fifty-four patients improved within 6 weeks of their injury and did not undergo advanced imaging studies. Patients who failed to respond favorably to conservative treatment and subsequently underwent magnetic resonance imaging and were found to have a single or two-level disc herniation as interpreted by the spine surgeon or radiologist were selected for study. This group consisted of 296 patients. Of the remaining 181 patients who continued to have pain, 119 patients had normal imaging studies, 37 had evidence of cervical degenerative disc disease at 1 level, 21 had cervical degenerative disc disease at more than 1 level, and 4 had a 3 level cervical disc herniation.

Data recorded for the 296 study patients included the patient's age, sex, nature of the motor vehicle collision, use of restraints, associated injuries, imaging results, physical examination, visual analog score, days absent from work, final work status, and type of insurance, ie, private, WC, or PI. Sixty-one patients had WC insurance and 235 filed a PI claim. A history and physical examination were performed at each follow-up visit, and each patient was asked to fill out a visual analogue scale with regard to their pain status and report any additional time lost from work. Return to work, the end point of disability resolution, was recorded for each patient.

Patient follow-up was initially weekly for the first 2 weeks, then monthly for the next 2 months, and then every

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