

Global Spine J 2014; 04(01): 021-032

## Early Predictors of Health-Related Quality of Life Outcomes in Polytrauma Patients with Spine Injuries: A Level 1 Trauma Center Study

**Study Design** Retrospective review on clinical-quality trauma registry prospective data.

**Objective** To identify early predictors of suboptimal health status in polytrauma patients with spine injuries.

**Methods** A retrospective review on a prospective cohort was performed on spine-injured polytrauma patients with successful discharge from May 2009 to January 2011. The Short Form 12-Questionnaire Health Survey (SF-12) was used in the health status assessment of these patients. Univariate and multivariate logistic regression models were applied to investigate the effects of the Injury Severity Score, age, blood sugar level, vital signs, brain trauma severity, comorbidities, coagulation profile, spine trauma-related neurologic status, and spine injury characteristics of the patients.

**Results** The SF-12 had a 52.3% completion rate from 915 patients. The patients who completed the SF-12 were younger, and there were fewer patients with severe spinal cord injuries (American Spinal Injury Association classifications A, B, and C). Other comparison parameters were satisfactorily matched. Multivariate logistic regression revealed five early predictive factors with statistical significance ( $p \leq 0.05$ ). They were (1) tachycardia (odds ratio [OR] = 1.88; confidence interval [CI] = 1.11 to 3.19), (2) hyperglycemia (OR = 2.65; CI = 1.51 to 4.65), (3) multiple chronic comorbidities (OR = 2.98; CI = 1.68 to 5.26), and (4) thoracic spine injuries (OR = 1.54; CI = 1.01 to 2.37). There were no independent early predictive factors identified for suboptimal mental health-related quality of life outcomes.

**Conclusion** Early independent risk factors predictive of suboptimal physical health status identified in a level 1 trauma center in polytrauma patients with spine injuries were tachycardia, hyperglycemia, multiple chronic medical comorbidities, and thoracic spine injuries. Early spine trauma risk factors were shown not to predict suboptimal mental health status outcomes.

有脊柱損傷的多創傷患者的健康生活質素結果的早期預測指標：1 級創傷中心研究

**研究設計** 臨床品質創傷登記的前瞻性數據的回顧性分析。

**目的** 在有脊柱損傷的多創傷患者中識別不理想健康狀態的早期預測指標。

**方法** 對 2009 年 5 月至 2011 年 1 月成功出院的有脊柱損傷的多創傷患者進行與一項前瞻性隊列回顧性分析。12-健康調查問卷 (SF-12) 的短表用於評估這些患者的健康狀況。單因素和多因素邏輯迴歸分析模型應用於調查創傷嚴重度評分，年齡，血糖水平，生命體徵，腦外傷的嚴重程度，合併症，凝血功能，脊柱創傷有關的神經功能狀態，以及患者脊柱損傷特點的影響。

**結果** SF-12 在 915 病人中有 52.3% 的完成率。完成 SF-12 的患者比較年輕，並較少嚴重脊髓損傷患者 (美國脊髓損傷協會分級 A, B 和 C)。其他比較參數圓滿地匹配。多因素邏輯迴歸分析顯示 5 個預測因素並有統計學意義 ( $P \leq 0.05$ )。他們分別為：(1) 心跳過速 (勝算比 [OR]=1.88; 可信區間 [CI]=1.11~3.19)，(2) 高血糖 (OR =2.65, CI=1.51~4.65)，(3) 多種慢性合併症 (OR =2.98, CI=1.68~5.26) 和 (4) 胸椎損傷 (OR =1.54, CI=1.01~2.37)。沒有獨立的早期預測因子可確定不理想精神健康狀況的結果。

**結論** 1 級創傷中心對有脊柱損傷的多創傷患者的不理想身體健康狀況的早期獨立危險因素包括心跳過速，高血糖，多種慢性合併症，與胸椎受傷。早期脊柱外傷危險因素並未證明可預測不理想的精神健康狀況的結果。