Global Spine J 2013; 03(02): 075-084
DOI: 10.1055/s-0033-1337124
Original Article
Georg Thieme Verlag KG Stuttgart · New York

Epidemiological Trends of Spine Trauma: An Australian Level 1 Trauma Centre Study

Knowledge of current epidemiology and spine trauma trends assists in public resource allocation, fine-tuning of primary prevention methods, and benchmarking purposes. Data on all patients with traumatic spine injuries admitted to the Alfred Hospital, Melbourne between May 1, 2009, and January 1, 2011, were collected from the Alfred Trauma Registry, Alfred Health medical database, and Victorian Orthopaedic Trauma Outcomes Registry. Epidemiological trends were analyzed as a general cohort, with comparison cohorts of nonsurvivors versus survivors and elderly versus nonelderly. Linear regression analysis was utilized to demonstrate trends with statistical significance. There were 965 patients with traumatic spine injuries with 2,333 spine trauma levels. The general cohort showed a trimodal age distribution, male-to-female ratio of 2:2, motor vehicle accidents as the primary spine trauma mechanism, 47.7% patients with severe polytrauma as graded using the Injury Severity Score (ISS), 17.3% with traumatic brain injury (TBI), the majority of patients with one spine injury level, 7% neurological deficit rate, 12.8% spine trauma operative rate, and 5.2% mortality rate. Variables with statistical significance trending toward mortality were the elderly, motor vehicle occupants, severe ISS, TBI, C1-2 dissociations, and American Spinal Injury Association (ASIA) A, B, and C neurological grades. Variables with statistical significance trending toward the elderly were females; low falls; one spine injury level; type 2 odontoid fractures; subaxial cervical spine distraction injuries; ASIA A, B, and C neurological grades; and patients without neurological deficits. Of the general cohort, 50.3% of spine trauma survivors were discharged home, and 48.1% were discharged to rehabilitation facilities. This study provides baseline spine trauma epidemiological data. The trimodal age distribution of patients with traumatic spine injuries calls for further studies and intervention targeted toward the 46- to 55-year age group as this group represents the main providers of financial and social security. The study's unique feature of delineating variables with statistical significance trending toward both mortality and the elderly also provides useful data to guide future research studies, benchmarking, public health policy, and efficient resource allocation for the management of spine trauma.

脊柱創傷的流行病學趨勢：澳大利亞的 1 級創傷中心研究

目前有關流行病學和脊柱外傷趨勢的知識有助於公共資源分配，主要預防方法的精細調整，和基準評價目的。由 2009 年 5 月 1 日至 2011 年 1 月 1 日間，所有因外傷性脊椎損傷而需要收治墨爾本阿爾弗雷德醫院的患者資料，均採自阿爾弗雷德創傷登記處，阿爾弗雷德健康醫療資料庫和維多利亞骨科創傷結果登記處。流行病學的趨勢是分析為一般群組，比較群組包括死亡者與倖存者以及老年人與非老年人。利用線性回歸分析，以證明具有統計學意義的趨勢。965 位外傷性脊椎受傷的患者，有 2,333 脊柱外傷節段。一般群組呈三峰年齡分佈，男性與女性的比例為 2:2，車輛事故作為首要脊柱外傷機制，根據嚴重程度評分（ISS），47.7％的患者有嚴重多發傷損傷，17.3％的患者有創傷性腦損傷（TBI），大部份患者有一個頸椎節段的損傷，7％神經功能缺損率，12.8％的脊柱創傷手術率，和 5.2％的死亡率。具有統計學意義的可變因素趨向死亡率是老人，車輛內的人數，嚴重的 ISS，TBI，C1-2 分離，美國脊髓損傷協會（ASIA）A，B 和 C 的神經功能級別。具有統計學意義的可變因素趨向趨向老人的是女性; 低水平跌倒; 1 個脊椎損傷節段; 2 型齒狀突骨折; 下頸椎拉張性損傷，和 ASIA A，B 和 C 的神經功能級別; 和患者沒有神經功能缺損。一般群組中，50.3％的脊柱創傷倖存者出院回家，和 48.1％出院到復康中心。這項研究提供了脊柱創傷流行病學數據的基線。脊柱外傷患者的的三峰年齡分佈需要進一步研究和干預面向 46 - 55 歲年齡群組，因為這組代表的財政和社會保障的主要提供者。這項研究中具有統計學意義的獨特特徵的劃定可變因素趨向死亡率和老人也提供了有用的數據，以指導未來的研究，基準評價，公共衛生政策，以及有效處理脊柱外傷資源配置。