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Rehabilitation for a Case with High-level Spinal Cord Injury and Multiple Trauma

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Purpose: Road traffic accidents may lead to devastating injuries and high-level spinal cord injury (SCI) induces paralysis of the breathing muscles, predisposing to ineffective cardiopulmonary function. Concurrent trauma to the extremities also causes further functional disability. A case of spine injury and long-bone fractures was reported.

Method: This was a 30-year-old victim of motor vehicle accident in which C3-4 vertebral fracture with spinal cord injury developed, in addition to bilateral femur shaft fracture, right tibia shaft fracture and right distal radius fracture. The patient underwent decompression and fusion, along with open reduction and internal fixation for bilateral femur fracture, right tibia shaft fracture and right distal radius fracture. Tracheostomy was performed due to mechanical ventilation dependence and respiratory training was commenced at the intensive care unit. Aggressive chest care was provided and pain control was achieved with medication and relaxation technique. Gradual active joint movement and muscle strengthening were started 6 weeks after surgery.

Results: Crackled breathing sound, nasal flaring and moderate amount of sputum with 93-95% oxygen saturation was found initially. After 2.5 months of rehabilitation, the respiratory rate improved from 22-30 to 14-22 times/minute. Successful weaning was achieved 1 month later and tracheostomy decannulation was performed 2 months later. The patient finally developed symmetrical breathing pattern despite of compromised vital capacity. Pain during movement reduced from 8 to 3 out of 10. He could transfer to wheelchair by himself and practice walking with a gait trainer. He was discharged home after 3 months of hospitalization.

Conclusion: For patients with spinal cord injury and multiple long bone fracture, early rehabilitation is mandatory to minimize complications, shorten the duration of ventilator support and improve mobility. Comprehensive evaluation and management ensures maintenance of function for those suffer from polytrauma.

Biography

Yu-Ling Lai graduated from Medical College of Central Taiwan University of Science and Technology in 2003 and has received full clinical nursing practice training at Taipei Tzu Chi Hospital. She has continued pursuing her master degree at the Institute of Nursing, Taipei Medical University since 2016 and is currently working at Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation as the head nurse of nursing department, as well as the nursing clinical practice teacher.

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