

Near Hanging

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Australia-wide, hanging is the second most common cause of suicidal death.² Hanging is the most prominent method of suicide among Top End Aboriginal males and females.³ Suicide rates among young people are increasing, as is the popularity of hanging as a mode of suicide.⁴ Almost 90% are males between the ages of 15–35 years. Indigenous Australians and those in legal detention are at particular risk. About one-third have a history of psychiatric illness, and nearly 50% have a history of drug (especially ‘ganja’) or alcohol abuse.¹ Some communities appear to have no incidence of hangings, while others have experienced near epidemic numbers of hangings and near hangings, with numbers of ‘copy cat’ hangings occurring over short periods of time.²

Mechanism of injury

There were eighteen relevant references found after a Medline search using search terms ‘hanging’, ‘near hanging’, ‘non-lethal hanging’, and ‘attempted suicide’. Two review articles^{1,5} provided a comprehensive review of literature over the past 15 years focusing on pathophysiology, clinical features and management.

One further study by a local psychiatrist provided additional local statistics and information.²

Survival without neurological damage is possible after attempted suicide involving near hanging.⁴ Initial neurological assessment is a very poor guide to final outcome (including fixed, dilated pupils).^{1,4} The worst prognostic indicators are absent or agonal respiration, absent vital signs or the need for resuscitation.¹ Therefore, aggressive resuscitation should be attempted on all victims and transfer to hospital performed if initial resuscitation is successful.

The patterns of injury are quite different to those seen in judicial hanging. Cervical spine injuries are quite rare.¹ Injury mainly arises through pressure on the neck veins and arteries. Compression of the airway is less common. The external compression causes venous cerebral congestion, hypoxic circulation and reduced arterial cerebral supply. If the person survives the initial event they may succumb in hospital due to the severity of the initial hypoxic and ischaemic brain injury.¹

Pulmonary complications include pulmonary oedema (ARDS) and bronchopneumonia secondary to aspiration. The oedema may be from a centrally mediated massive sympathetic discharge that produces an intense generalised vasoconstriction and a fluid shift from the high resistance systemic circulation to the low resistance pulmonary circulation. The other cause of pulmonary oedema is secondary to negative intrathoracic pressures generated as the person attempts to inspire through an obstructed airway.

Laryngeal injuries may occur. Thyroid cartilage fractures are the most common with fractures of the hyoid bone and cricoid cartilage seen less often. Damage to these structures is more common in those over 40 years due to calcification and where a narrow ligature has been used. Review articles of large numbers of near hanging victims show that airway compromise, leading to difficulty intubating, are extremely rare.¹

Other neurological injuries include various spinal cord syndromes, focal cerebral deficits, transient hemiparesis and larger infarctions. The nature of the initial insult is a diffuse brain injury so myriads of deficits have been described. Various nerve palsies also occur. Cerebral oedema is invariably present if there has been a significant injury.

Other described injuries include traction injuries to the carotid arteries where bleeding into the vessel wall or intima occurs. This can lead to immediate or late obstruction to blood flow. Hyperthermia, status epilepticus, subarachnoid haemorrhage, ruptured oesophagus and pneumoperitoneum have all been described. Facial petechiae and subconjunctival haemorrhages are common.

Management

First aid measures should follow the standard DR ABC resuscitation scheme.

Early management should include intubation if the person requires CPR, has a compromised airway or has neurological compromise. Intubation should aim to cause minimal haemodynamic instability and avoid any period of hypoxia. Cricoid pressure, in-line cervical stabilisation and moderate positive end expiratory pressure (PEEP) should be used. All victims, whether intubated or not, should be transported to hospital and observed for 24 hours as soft tissue swelling can occur. The cervical spine should be protected even though fractures are extremely rare. Management of cerebral oedema follows standard therapies for managing head injuries due to other causes. These include nursing in a 30° head-up position, careful maintenance of normocarbia, normoglycaemia, moderate fluid restriction and avoidance of hypotension. Consideration should be given to performing a cerebral CT scan and carotid studies.

All victims will require psychiatric support. All staff and relatives involved in a near hanging incident also require skilled counselling providing psychological and emotional support.

References

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4. Kaki A, Crosby ET & Lui AC. Airway and respiratory management following non-lethal hanging. *Can J Anaesth* Apr 1997; 44(4):445–50.