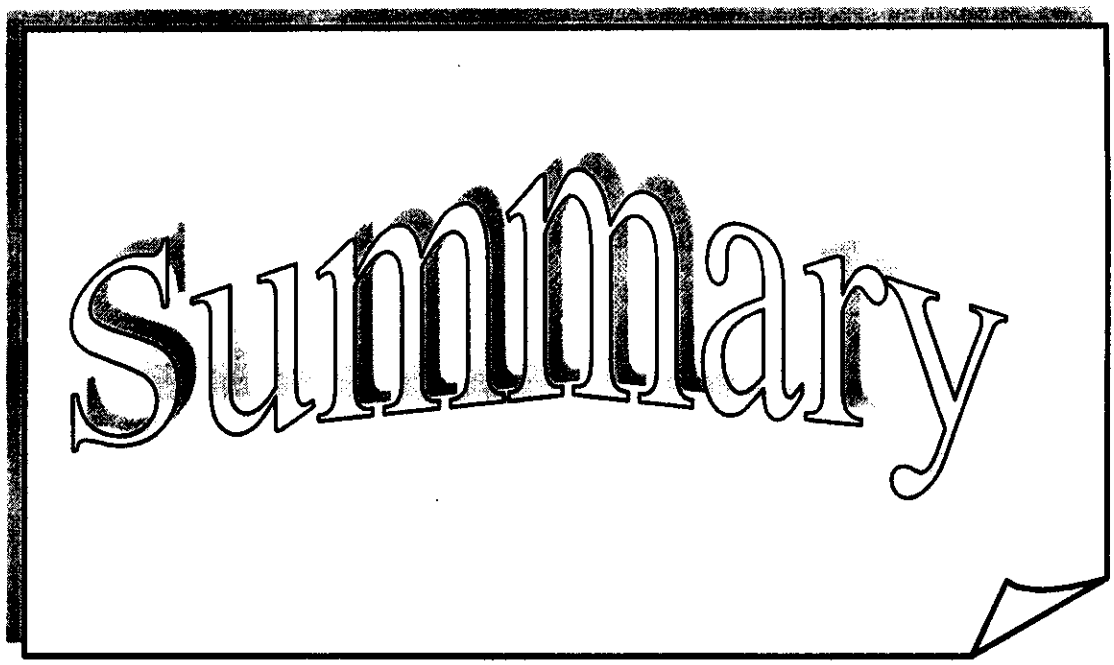
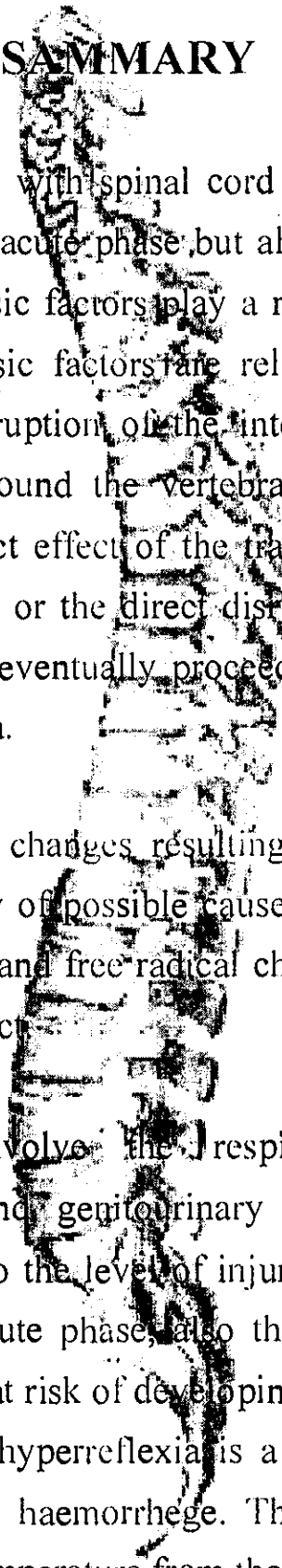

Summary

SAMMARY



Management of patients with spinal cord injury is an anaesthetic challenge, not only in the acute phase but also in the chronic phase. Extrinsic as well as intrinsic factors play a role in the loss of spinal cord function. The extrinsic factors are related to fractures of the spinal column and/or disruption of the intervertebral discs or the supporting soft tissues around the vertebral column. The primary intrinsic injury is the direct effect of the traumatizing forces on the venules of the gray matter or the direct disruption of nervous tissue itself. The primary injury eventually proceed to secondary injury of cord ischaemia and oedema.

The pathophysiological changes resulting from impact injury to spinal cord suggest variety of possible causes related to mechanical, vascular, biogenic amines and free radical changes which occur over aperiod of hours after impact.

The complications involve the respiratory, cardiovascular, temperature regulatory and genitourinary system. Respiration is compromised according to the level of injury. There is hypotension and bradycardia in the acute phase, also the patient is sensitive to volume changes and he is at risk of developing pulmonary oedema. In chronic phase autonomic hyperreflexia is a major problem. It may lead to cerebral or retinal haemorrhege. These patients tend to be poikilothermic and their temperature from the surrounding.

Hyperkalaemia may occur after the use of succinylcholine and it may be dangerous. Also hypocalcaemia and osteoporosis put the patient at risk of fractures with more neurological damage. Usually there is impairment of renal function, so electrolyte balance and intravascular volume should be assessed carefully.

Emergency management of patients with spinal cord injuries should start at the phase of accident, it includes methods of transportation, airway management, cardiovascular support and care of bladder.

In the acute phase of SCI, anesthesiologists provide emergency cardiovascular, respiratory management and general anesthesia for surgery involving an associated injury and anesthesia for stabilization and decompression laminectomy. The initial evaluation and stabilization of trauma victims ideally occur at the scene with aggressive management of the airway, breathing, and circulation according to the American College of Surgeons(Advanced Trauma Life Support guidelines. Hypoxemia and intubation often occur at the time of initial resuscitation and endotracheal intubation in the field has been shown to improve survival in patients with sever spinal cord or traumatic brain injury by preventing secondary insults from hypoxia and ischemi.

Methylprednisolone should be administered, to patients with acute SCI, as a bolus of 30 mg/kg, followed by an infusion of 5.4 mg/kg for

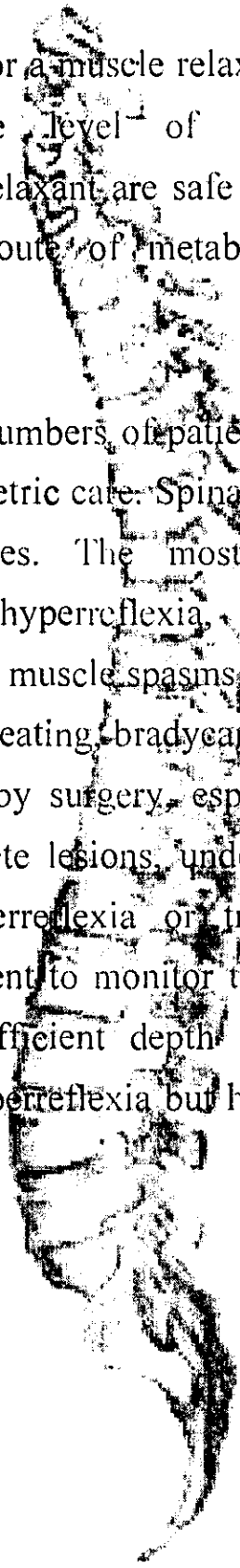
24 hours if started within 3 hours of injury and 48 hours if srarted 3 to 8 hours after injury.

The primary anesthetic goals for patients with acute SCI are to ensure the adequacy of oxygenation and ventilation by securing the airway with an endotracheal tube and to maintain spinal perfusion pressure.

The induction phase of patients with acute SCI involves two basic considerations: airway management and hemodynamic control. The patient with acute SCI is considered to have a full stomach and to be at increased risk for passive regurgitation of gastric contents. Factors that make regurgitation more probable include gastric atony, supine position, paralyzed abdominal musculature, and pre-intubation positive pressure ventilation. Cricoid pressure must be applied cautiously to a patient with cervical SCI. succinylcholine may be a preferable agent in that it has a rapid onset and does not cause hyperkalemia.

One goal of the intraoperative stage of anesthesia for acute SCI is maintenance of spinal cord perfusion to prevent further damage. Both intravenous and inhalational agents have the advantage of greater titratability in the face of intraoperative change in blood pressure. The spinal cord circulation is similar to the cerebral circulation. Therefore, hypocapnia via hyperventilation may lead to vasoconstriction and the potential for ischemia. Thus normocapnia or only mild hypocapnia is

recommended. The need for a muscle relaxant will be dictated by the operative site and the level of spinal cord transaction. Nondepolarizing muscle relaxant are safe to use and are selected on the basis of duration, route of metabolism, and hemodynamic stability.



There is increasing in numbers of patients with spinal cord injury present for surgery or obstetric care. Spinal cord injury causes unique pathophysiological changes. The most important perioperative dangers are autonomic hyperreflexia, bradycardia, hypotension, respiratory inadequacy and muscle spasms. Autonomic hyperrflexia is suggested by headache, sweating, bradycardia and sever hypertension and may be precipitated by surgery, especially bladder distension. Patients with low, complete lesions, undergoing surgery below the level of autonomic hyperreflexia or troublesome spasms. An anesthetist should be present to monitor the patient in this situation. General anesthesia of sufficient depth is effective at controlling spasms and autonomic hyperreflexia but hypotension and respiratory dysfunction are risks.