

Abstracts

Compiled By: Journal Staff

Spinal Immobilization and the Logrolling Maneuver

MCGUIRE RA, NEVILLE S, GREENE BA, WATTS C

Journal of Trauma 27:525-531, 1987

The safety of the log-rolling maneuver, backboard, and scoop stretcher were evaluated in three studies. A normal volunteer was examined with AP radiographs when supine and in 90 degree log roll. A significant scoliotic sag is apparent during the log roll. A cadaver was studied after surgical destabilization of the L1-L2 joint in the spine. AP and lateral radiographs during a 45 degree log roll show a 21 mm AP displacement, 5 mm laterally and a 30 degree rotation of the joint. Following application of the backboard, AP displacement was corrected but lateral and rotary deformity remained. On the scoop, AP displacement was reduced to 6 mm, lateral displacement to 6 mm and the rotary displacement was corrected. A 38 y.o. male with recent, and previously known, T12-L1 fracture was log rolled during angiography for suspected aortic aneurism. AP and lateral films reveal 7 mm lateral displacement, without AP or rotational distortion. The authors concluded that the backboard and scoop offer adequate thoracolumbar spine immobilization, but the log roll maneuver could lead to extreme spinal motion and neurological compromise. No definitive solutions are offered, nor are any guidelines for prehospital care of spinal injuries presented. These issues must be addressed by further research.

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A Radiographic Comparison of Prehospital Cervical Immobilization Methods

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Annals of Emergency Medicine 16:1127-1131, 1988

The efficacy of the California Stif-Neck Collar (CSC), Kendrick Extrication Device (KED) and the Extrication Plus-One (XP-One) were compared to standard short board technique (SBT) for cervical immobilization in 45 normal volunteers. Radiographic studies were performed sagittally and frontally. Direct protractor measurement was made for axial rotation. The KED, XP-One, and SBT studies did not incorporate cervical collars in conjunction with those devices. In lateral bending, SBT was superior to CSC and KED, but was comparable to the XP-One. For axial rotation and flexion, there were no significant differences. In extension, the SBT and KED were comparable but the CSC and XP-One were significantly less effective. In a total range of motion in mean degrees of movement (flexion-extension between occiput and C7), the KED and XP-One

were comparable to the SBT, but the CSC did not perform as well. The authors conclude that the SBT is the technique against which other methods should be compared. The KED and XP-One were found efficacious and superior to the CSC alone.

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The Effect of Axial Traction During Orotracheal Intubation of the Trauma Victim with an Unstable Cervical Spine

BIVINS HG, FORD S, BEZMALINOVIC Z, et al
Annals of Emergency Medicine 17: 25-29, 1988

Axial traction with and without orotracheal intubation of 17 blunt trauma arrest victims were studied radiographically immediately following unsuccessful resuscitation. Four of these cases had unstable cervical injuries, including C6-7 fracture/dislocation, hangman's fracture, and two atlanto-occipital dislocations (AOD). Axial traction with intubation produced a mean distraction at the fracture site of 7.75mm. In axial traction alone, 4mm produced subluxation at the C6-7 injury was produced along with the distraction. The authors conclude that intubation of trauma victims prior to complete radiographic comparison should be via the endotracheal method. If nasotracheal intubation is contraindicated, cricothyrotomy should be utilized.

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Thrombolytic Treatment in Acute Myocardial Infarction

ACAR J, VAHANIAN A, MICHEL P, ET AL
Seminars in Thrombosis and Hemostasis 13:186-200, 1987

A thorough review article (including 129 citations) is presented on the pathophysiologic rationale and historical development of thrombolytic treatment of acute myocardial infarction (AMI). The pathophysiologic role of thrombosis in AMI has been controversial. Angiography performed within 6 hours of the onset of symptoms shows an 80% incidence of thrombosis, compared to approximately 55% 6-12 hours after post-infarct. A natural thrombolysis is suggested. However, thrombosis is not the only etiology of AMI. Disorders such as ulceration of atherosclerotic plaques, spasm and platelet activation are also cited as alternative or contributing events. However, thrombosis appears to be the most common and therefore the impetus for a considerable world-wide thrombolytic research effort over the past two decades. Animal studies with controlled coronary occlusion show that reperfusion after 40 minutes allows salvage of 60-70% of the effected myocardium. After 3 hours, salvage drops to 10% and is negligible after 6 hours. This highlights the importance of early thrombolytic intervention as has been confirmed with a number of studies using various agents. The authors provide insight on the following agents: streptokinase, urokinase, ACYL enzyme, prourokinase, and tissue plasminogen activator (t-PA) as well as percutaneous coronary angioplasty. The paper concludes that thrombolysis is effective if given early and is

particularly useful in younger patients with critical infarction. These agents cannot be administered in all patients, as some contraindications must always be observed. Residual stenosis often remains after thrombolysis and coronary angioplasty may be useful here, but logistics limit widespread availability on an acute basis. Heparinization should follow thrombolysis, but dosage remains controversial. They close with the reminder that thrombolysis is not the only treatment of AMI.

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Metabolic Acidosis After Acute

Ibuprofen Overdosage

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Journal of Pediatrics 6:922-925, 1987

Two case reports of metabolic acidosis following ibuprofen overdosage are presented. The first case is a 2 y.o. male with a 666 mg/kg ingestion. The second is a 15 month old male who sustained a 560 mg/kg ingestion. Both had pH values of 7.27 and bicarbonate was 19 mEq/l and 14 mEq/l, respectively. Anions gaps of 15 mEq/l and

16 mEq/l were found, respectively. Discussion in the paper outlines that peak serum concentrations occur 1-2 hours after single therapeutic ingestion, the pharmacokinetics are not cumulative, and delayed absorption does not occur with overdosage. Ibuprofen is highly bound to proteins and has a very limited volume of distribution (0.18 l/kg). Hepatic metabolism is the primary means for elimination with a half-life of 0.9 to 2.5 hours. Minimal toxic exposure is indicated as 100 mg/kg, but many individuals do not exhibit and signs or symptoms at these levels. The metabolic acidosis eluded to earlier was relatively mild and of brief duration in both patients. Treatment should be directed towards limiting absorption and providing standard supportive care. GI decontamination and 4 hours of observation are recommended for all intentional and pediatric cases with ingestion of at least 100 mg/kg. In cases of over 400 mg/kg, gastric lavage, activated charcoal, or both may be preferable to induce emesis in cases of coma or seizure. Alkaline diuresis and multiple dose charcoal are of very limited value.

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