

63% within the first 6 hours after onset of symptoms. The median time interval from EMS alarm to hospital admission was 42 minutes (16–105 min). Cranial computerized tomography was performed within a median time interval of 228 minutes after EMS alarm (47–1,408 min), and within 188 minutes (3–1,385) after hospital admission, respectively.

**Conclusion:** Early initiation of treatment is crucial regarding prognosis and outcome in stroke patients. Starting therapy in the EMS provides the possibility of early treatment, thus enabling time limited therapeutic regimens like neuroprotection and thrombolysis. Parallel to advanced trauma life support algorithms (ATLS), in-hospital treatment of stroke patients should be optimized to reduce time delays.

**Key words:** diagnosis; emergency medical services; scans; stroke; time intervals; outcome; prognosis; treatment

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### Efficacy of MEBO Bandaging in Treating Second-degree Burns

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**Objective:** To observe the efficacy of MEBO bandaging method in treating burn wounds.

**Methods:** Patients with second-degree burns who were hospitalized during the same period were selected for treatment with MEBO bandaging.

**Results:** 180 cases of superficial and deep second-degree burns all were cured. Wounds healed without any hyperplastic scar.

**Conclusion:** MEBO bandaging method for treating second-degree burns gives very reliable efficacy and is easy to apply. It is worthy of adoption.

**Key words:** bandaging; burns; healing; second degree; MEBO; scar; wounds

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### Improving Capabilities in Prehospital Trauma Life Support

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**Introduction:** Prehospital Trauma Life Support (PHTLS) is the action taken on the injured before entering medical service such as at a firstaid station. China is one of unfortunate countries where various disasters happen everyday. Therefore, it is necessary to perfect PHTLS.

**Hypothesis:** Based on the analysis of the current situation of PHTLS in Shanghai, the authors hold that the best approach for improving the capabilities for PHTLS are as follows:

1. The most important measure is to increase the speed of the critical care response to disaster. This is of great

importance for lowering the incidence of disability and mortality of the injured. This may be accomplished by bettering the personal mental status, communication apparatus, first-aid station distribution, vehicles, and so on

2. Increasing the level of critical care provided at the scene of the disaster also is vital. This demands incorporating the concept of taking action without sophisticated medical support, counterplans, a transient conduct system, practiced skills for critical care, essential medicines and medical instruments in the ambulances, and practice during peacetime.

**Conclusion:** A strategy for enhancing the delivery of PHTLS during a disaster is proposed.

**Key words:** China, critical care; life support; prehospital; responses; speed; trauma

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### Effects of Noradrenaline on Absorption of Organophosphorus Pesticides during Animal Lavage

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**Objective:** To look for an effective substance to use for lavage.

**Methods:** After pouring different concentrations of noradrenaline into a rat's stomach, we observed the change of the rat's gastric mucous membrane. We also poured DDVP into dog stomachs. The dogs were allocated into three groups: the model group (no lavage), the experimental group (lavage using adrenaline) and the control group (lavage using NS). Cholinesterase activity, blood pressure, and heart rate were monitored.

**Results:** When using noradrenaline, maximum concentration (0.03%), there was no change in the rat's gastric mucous membrane. The cholinesterase activity decreased in the model group, and was minimal in the experimental group ( $p < 0.01$ ).

**Conclusions:** Lavage using noradrenaline (0.008–0.016%) may be safe and may decrease the continuous absorption quantity of poison. Lavage using a 0.008% noradrenaline solution provided the best results. Lavage using a solution of noradrenaline (0.008%) for organophosphorus pesticide poisoning shows promise for clinical use.

**Key words:** cholinesterase; lavage; noradrenaline; organophosphates; poisoning

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### Analysis of Serious Organophosphate Poisoning

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From June 1995 to September 1999, 67 serious cases of organophosphate poisoning were rescued. Of all of the cases, 7 cases (10.4%) were male, 60 cases (89.6%) were female. The average of the ages was 29.5 years. These cases

were poisoned by digestive tract, 47 cases (70.1%) by Metham, 7 cases (10.4%) by Folimat, 11 cases (16.4%) by Atgard. The dosage taking ranged from 50 to 250 ml, with an average of the doses of 120 ml. The main presenting symptoms and signs were: coma, vomiting, urinary incontinence, drooling, difficulty breathing, hypertension, face muscle trembling, miosis, and rales in both lungs. The serum cholinesterase action ranged from 0 to 8 Units.

**Key words:** organophosphate poisoning; rescue; signs; symptoms

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### The Value of Initial Serum Levels of Drugs as Predictors of Complication Risks in Intentional Intoxications

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**Introduction:** Intentional intoxications are encountered frequently in emergency services, and the medical management of these patients depends on the initial clinical status of the patient and the local poison unit's advice. Managing these patients can be very expensive due to the fact that the clinical status may vary dramatically within a short period. The aim of the present study is to assess the role of initial serum level of the drugs as a sign of complication risks to these patients in order to improve the cost-effectiveness of their management.

**Methods:** Clinical and biological findings from a sample of 200 consecutive patients (128 females and 72 males, aged between 17 to 79 years, with an average age of 35 years) were managed in our institution from January 2000 to December 2000. All victims of intentional intoxication (except pure or mixed alcohol and addicts) were reviewed retrospectively. The initial clinical status, the management duration, and the complications were used to assess and establish the effectiveness of each drug on a five-point scale score. Curves between these scores and each drug initial serum level were established and correlation coefficients calculated.

**Results:** Most of the intoxications were due to intentional benzodiazepin overdose. We did not find any statistically significant correlation between drugs' initial serum level and the effectiveness score of drugs included in the patient's usual drug regiment such as antidepressive agents. Some correlation was found for some uncommon drugs such as paracetamol.

**Key words:** complication risks; cost; effectiveness; intoxication; overdose; prediction; serum levels

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### Hemorrhagic Shock and Antioxidants: Influence of Timing on Survival

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**Introduction:** Hemorrhagic shock (HS) is associated with the generation of reactive oxygen species (ROS). Interventions that reduce the generation of ROS exert beneficial effects on the acute mechanisms in HS models. Spin trapping nitrones or tempol (4-hydroxy-2,2,6,6-tetramethyl-4-piperidine-N-oxyl), which acts as an antioxidant and membrane-permeable scavenger of superoxide anions, improved short-term outcome in models of hemorrhagic or endotoxic shock. We hypothesized that poly-nitroxylated, albumin-bound tempol (PNA+Tempol), which increases half-life of free tempol, improves process and outcome variables during and after HS in rats.

**Methods:** *Study 1.* HS was induced by blood withdrawal of 3 ml/100 g over 15 min. Mean arterial pressure (MAP) was maintained at 40 mmHg with normal saline or blood withdrawal from 20 to 90 minutes. Resuscitation (90 to 270 minutes) was with infusion of shed blood. Observation was to 72 hours. At HS 45 minutes, albumin (ALB, n = 3D 10) or PNA+Tempol (n = 3D 10) was infused (1 ml/100g/h) until 120 minutes.

*Study 2.* Same as in Study 1 (n = 3D 6 per group), but terminated at 150 minutes.

*Study 3.* Same as Study 1, but started with ALB or PNA+Tempol (n = 3D 7 per group) at 20 minutes. Primary endpoints in Studies 1 and 3 were survival and biochemical markers, endpoints in Study 2 were antioxidant reserve (serum and tissue) and inflammation (tissue).

**Results:** *Study 1.* 72 hour survival was 1/10 (ALB) vs. 2/10 (PNA+Tempol). At 90 minutes, pHa was lower in the ALB group vs. the PNA+Tempol group ( $p = 3D, 0.02$ ) and remained low. Arterial lactate increased to  $8.9 = B1 3.2$  vs.  $6.5 = B1 1.8$  mmol/l ( $p = 3D, 0.04$ ) and base excess was  $-9.6 = B1 4.3$  vs.  $-5.2 = B1 3.2$  mmol/l ( $p = 3D 0.01$ ) (ALB vs. PNA+Tempol, respectively).

*Study 2.* Antioxidant reserve in the serum was threefold lower in the ALB group vs. the PNA+Tempol group ( $p = 3D 0.002$ ). There were no differences between groups in antioxidant reserve in the small intestines or low molecular weight thiols in liver, kidney, and small intestine. Expression of pro-inflammatory cytokines in liver and gut was similar in both groups.

*Study 3.* 72 hour survival was 0/7 (ALB) vs. 5/7 (PNA+Tempol),  $p=3D 0.02$ . Heart rate and systolic blood pressure at end of HS were higher in the ALB group ( $p < 0.05$ ).

**Conclusion:** When infused early in HS, PNA+Tempol can increase survival. When given late, it significantly improves acid-base and antioxidant status, without an effect on survival. Early resuscitation with the antioxidant PNA+Tempol may attenuate ROS-mediated injury and the progression toward multiple organ failure and death after HS. The results suggest that antioxidant therapy should be part of the initial resuscitation for HS.

**Key words:** antioxidants; hemorrhage; outcome; reactive oxygen species; scavengers; shock survival; tempol; timing

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