

quake that occurred on 13 January 2001. We report on this mission. The duration of the activities was from January 16 to January 25. The Japanese Medical Team for Disaster Relief (JMTDR) consisted of 18 members.

The place of activities was Hospital Nacional de Santiago de Maria and Colegio Santa Gema. Medical treatment rendered included first aid and primary health care. During the nine days, we treated 1,573 patients including 1,284 in Santiago de Maria and 289 in Santa Gema. There were 1,496 new patients and 77 revisits; 565 patients were <15 years old, 767 between 16 and 59 years, and 244 were >60 years old. The three most common final diagnoses were respiratory diseases in 716 (45.5%), acute stress syndrome in 322 (20.5%), and neurological/orthopedic diseases in 257 (16.3%).

The suggestions at the time of withdrawal were as follows: (1) to consider the preventive measures for infection affected by the earthquake, such as appropriate lavatories; (2) because many catch colds after staying or sleeping outside the home they need sufficient blankets and air mattresses (3) to maintain abdominal hygiene, the affected population should be supplied with insecticide; and (4) to keep conditions sanitary and to maintain good hygiene, menstruating women must obtain enough sanitary napkins.

**Key words:** demography; disasters; earthquake; public health; relief

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### Homeostasis Correction in Burns Complicated by Blood Loss

*N.I. Atyasov; S.A. Kozlov*

Saransk, RUSSIA

Homeostatic changes have been studied, and some methods for correcting the revealed disturbances have been developed on the model of deep burns (IIIB,IV degree) of >10% of body surface and acute blood loss of 20–25 ml/kg in experiments on 50 dogs. The control series (no therapy) was noted to develop a hypodynamic syndrome, decompensated metabolic acidosis, hyperfermentemia, electrolytic shifts, and inhibition of myeloerythroproliferation. The resulting polyorganic pathology due to mutual aggravation syndrome caused death of all of the animals by the 4th–5th hour post-injury.

Intravenous infusive therapy with rheopolyglukin, isotonic solution of sodium chloride and antihypoxants (sodium oxybutyrate [SOB], 200 mg/kg, dimephosphonium, 1100 mg/kg, mexidol(e) 50 mg/kg) appeared to correct the principal parameters of homeostasis: it stabilized the central haemodynamics, normalizes the acid-base balance (ABD), reduced hyperfermentemia and endogenous intoxication along with a decrease in lipid peroxydation products. The therapeutic effect was noted to rise in intraosseous infusion of antihypoxants. Maximal antihypoxic effects of SOB was registered by 3 h after infusion, and that of dimephosphonium by the 6th h; the ABD normalizing effect of antihypoxants persisted for 24h. Intraosseous infusive therapy of combined injury in the presence of SOB helped to provide

100% survival rate within 24h; with dimephosphonium, the rate was 50%; mexidol (e) prolonged the life span to 72h.

Polycomponent infusive therapy in combined injury (deep burns complicated by acute blood loss) including antihypoxants seems to be valid and, should be taken into account in clinical practice.

**Key words:** antihypoxants; antioxidants; blood loss; burns; hemodynamics; hemostasis; hypodynamics; hypoxia; intoxication; survival; therapy

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### Effect of Antihypoxants on Bone Marrow Blood Formation in Burns Complicated by Blood Loss

*N.I. Atyasov; S.A. Kozlov; I.G. Zaykina*

Saransk, RUSSIA

The efficacy of the use of antihypoxants in deep burn therapy (IIIB–IV degree), 10% of body surface, with acute blood loss 20–25 ml/kg has been studied in three series of experiments on 30 dogs, 10 animals in each. The control series received no therapy; the second group received intravenous infusions of rheopolyglukin, isotonic sodium chloride solution, sodium oxybutyrate (SOB, 200 mg/kg), and autoblood 1h post-trauma; and in the 3rd series, SOD was replaced by dimephosphonium (100 mg/kg).

The royelogram taken 1 h post injury, showed a sharp decrease in total myelokaryocytes (57% to the original level), increase in mature myeloid components, reduction of immature forms, and erythrocytes. In the control series, mitosis increased in numbers along with the rise in erythrocyte share by the 5th day post-injury. Leukoerythroblastic (l/e) ratio was 3:1 (4.5:1 in the norm). The use of SOB was not observed to correct the myelogram: decrease of blast and immature forms along with rapid maturing of neutrophils continued; the share of erythroid forms in the punctate was sharply decreased; the l/e ratio became 27:1; the mitosis number went down to 2%. Signs of activation in erythropoiesis of erythroblastic type with predominant basophilic and polychromatophilic normocytes were noted after dimephosphonium infusion; the l/e ratio comprised 4.5:1. The number of mitoses returned back to the original level.

Combined injury (deep burns complicated by blood loss) causes inhibition of erythropoiesis and speeds up neutrophil maturation. The use of SOB provided a reversible picture of regenerative bone marrow, while diroeposphonium infusion tends to restore haemopoiesis.

**Keywords:** antihypoxants; blood loss; burns; erythrocytes; erythropoiesis

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