

**Method:** Work on a construction building site settled with in an industrial area required spreading of quick lime near the factory. A change of wind direction exposed a large numbers of labourers to calcium oxide emanations. The first dispatch of assistance consisted of two ambulances and one medical team. The director of medical assistance (DMA) also was notified and went to the scene. The intoxication was moderate and consisted of airway and eye irritation.

Initially, around 40 labourers showed up with these symptoms, but soon more than 100 labourers complained of cough and ocular irritation. An accurate triage was indispensable on the scene as to avoid a massive evacuation of the victims toward the hospitals, and in this way, impeding emergency medical services. The arrival on the site of an extra ambulance and a second medical team permitted the realization of the DMA directives, triage in an hour, and the evacuation started 1.08 hrs after the alert. Transportation of casualties was done by ambulances for four victims and 16 other victims were transported with the help of the minivan of the civil security. The major problem confronted during this incident was a hysterical panicking among the workers and only a few casualties really had the symptoms.

**Results:** Of the hundred or so labourers who arrived in the triage area, only 20 had to be evacuated. The last casualties left the scene 1.45 hrs after the alert and the DMA left 2.23 hrs after the start of the event.

**Conclusions:** An important number of casualties did not need evacuation, and an appropriate triage allows non-transport of people involved who otherwise would overwhelm the emergency services.

#### References

Koch P: Skin burns, necrosis and ulcers caused by wet cement, ready-mixed concrete and lime. 8 cases. *Ann Dermatol Venerol.* 1996;123(12):832-836.

**Key words:** calcium oxide; director; evacuation; lime; symptoms; triage

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#### Study of Stress among Rinsis Workers

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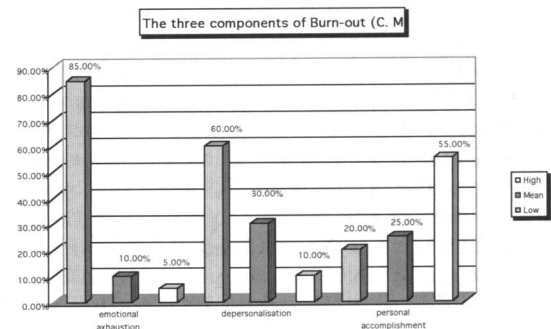
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**Introduction:** Rinsis (call centre for emergency needs, ambulance, firepersons, emergency medical team, etc.) services a population of about 1,350,000. The calls (about 1,400 each day) cause stress among workers. We evaluated the stress levels using several studies.

**Methodology:** First test of Derogatis is a list of 90 proposals. Participants must choose between 5 possible answers ("not at all", "a little", "sometimes", "often", "very often"). The score is compared with the score of witness population. The second test is the Maslach and Jackson test: 22 proposals permit choice between 6 frequency and 7 intensity. We established an emotional exhaustion coefficient, a depersonalisation coefficient, and a personal accomplishment coefficient.

**Results:** Score of was is 32.1 for the Rinsis and 62 for wit-

ness population. Test of Maslach and Jackson showed the following results:



**Conclusions:** The score of Derogatis indicates a better adaptation to the stress for Rinsis than for the witness population. The tests of Maslach and Jackson indicates a low score of emotional exhaustion with very few people who depersonalise relationships with callers. Their work represents a satisfying personal accomplishment for 55% of the Rinsis workers.

**Key words:** call center; dispatchers; emotions; relationships; Rinsis call center; stress

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#### The Sleipner Catamaran Incident—Norway, November 1999

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During the evening of 26 November 1999, the passenger catamaran vessel SLEIPNER, with 85 persons on board, ran aground in open sea near the west coast of Haugesund, Norway. It was dark and cold with strong winds and rough seas. The sea temperature was 9° C. The Search and Rescue (SAR) services were alarmed by a coastal radio station a few minutes after the event. At about 19:45 hours, the ship sunk, approximately 40 minutes after the grounding, and all persons on board were in the water. By means of helicopter and nearby boats, 69 were saved alive, 11 were found dead during the SAR operation the same evening, and five were found dead by underwater search.

The Coastal Radio Station alarmed the Joint Rescue Coordination Centre Southern Norway (RCC) and nearby vessels according to IMO procedures. The RCC also alarmed the Emergency Dispatch Centre at Haugesund Public Hospital. Health personnel from this hospital went out to a small harbour nearby the site of incident. A SAR-helicopter was dispatched from Sola Air Base at Stavanger, some 40 nm south of the scene of incident. Due to response time, the helicopter left base at 19:45 hours, arriving on scene at about 20:10 hours. Nearby vessels had just arrived. Both the helicopter and the surface vessels were

met by a lot of small sparkling lights in the water, that turned out to be the lights on the life jackets on the persons in the water. The helicopter doctor decided to give priority to the persons lying alone with their heads above the water. The helicopter dropped fuel to gain capacity. When full, the helicopter went to the shore to land the persons at the arrival point established by the health personnel from the hospital.

The incident and rescue operation is documented and evaluated through a report from a governmental assessment group. The lessons learnt are:

1. A decentralised health care system integrated with the public SAR-services guarantees a rapid response and makes use of local general and specialised health care. However, this same integration may complicate the alerting process a bit. Therefore, this must be described clearly through written procedures and incorporated into the training;
2. There is a need to make medical prioritising on scene, and demonstrates the need for the transport of competent medical personnel to the point of the accident as soon as possible after the incident. A highly qualified medical practitioner should be available on scene as soon as possible, with first helicopter;
3. There also is a need for a superior organisation of local and regional medical emergency dispatch centres to ensure prioritising and quality assurance of the medico-professional sides of an operation of this kind. This is a professional medical task, not a task for the joint rescue coordination centre that focuses upon the coordination of resources of all kinds on scene;
4. Even though personnel with much experience provide good professional performance under difficult and uncommon conditions, the need for thorough debriefing is obvious.

After the incident, many of the rescue personnel were invited to and engaged in events arranged by the survivors and their relatives. This is a new and increasing phenomenon in Norway. There is not a tradition for emergency personnel to take part in psychosocial follow-up after large accidents. The role of and effects on emergency personnel taking part in post-incident follow-up of survivors and relatives is new, and should be assessed thoroughly before it is developed any further.

**Key words:** boat; debriefing; doctor; experience; helicopter; rescue; sea; search and rescue; triage

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### **Alcoholic Ketoacidosis: Prospective Study of ACTH, Cortisol, Insulin, and Glucagon Seric Levels**

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**Introduction:** Alcoholic ketoacidosis is an unrecognised syndrome in Europe, whereas in USA, it is involved in 20% of the cases with ketoacidosis. The pathophysiology of alcoholic ketoacidosis still is obscure. A relative deficiency

in insulin and an increase of glucagon have been suggested. However, the levels of these hormones never has been studied together. The aim of this study was to clarify the hormonal profile of alcoholic ketoacidosis before treatment.

**Methods:** The levels of cortisolaemia, ACTH, insulinaemia, and glucagoneamia were assessed by radioimmunoassays; glycemia was measured at the same time. Blood sampling was done at admission into the Emergency Department. The inclusion criteria were: (1) a past history of alcoholism, (2) absence of known diabetes, (3) metabolic acidosis with an increased anion gap and ketosis detected in the urine, (4) ketoacidosis correction without insulin, and (5) hospital discharge without antidiabetic medicine. The results are expressed as mean  $\pm$ DS. Seven women and two men, average age  $48.5 \pm 12.5$  years, were included during 10 episodes of alcoholic ketoacidosis.

**Results:** All patients recovered after hydration, with correction in arterial pH within  $10 \pm 2$  hours, and correction plasma bicarbonate concentration within 24 to 48 hours. Insulin infusion never was necessary. The average levels of insulinaemia (normal range 5 to 15 mU.l<sup>-1</sup>) and glucagoneamia (normal range 60 to 200 pg.ml<sup>-1</sup>) were respectively to  $7.25 \pm 4.7$  mU.l<sup>-1</sup> and  $369.4 \pm 161$  pg.ml<sup>-1</sup>; the glycemia was  $7.3 \pm 4.3$  mmol.l<sup>-1</sup> (range: 2.2 and 15.9 mmol.l<sup>-1</sup>). The cortisolaemia (normal range 220 to 610 nmol.l<sup>-1</sup>) were increased to  $1,240.4 \pm 778.6$  nmol.l<sup>-1</sup> and the plasma ACTH levels (normal range 9 to 52 pg.ml<sup>-1</sup>) were very low to  $5.3 \pm 7.6$  pg.ml<sup>-1</sup> (non-detectable levels in four cases).

**Discussion:** These results confirm an increase of glucagoneamia and a non-adapted insulin concentration. Other ketogenetic factors were present in these patients: recent weaning from alcohol, starvation, and hypovolemia. The extracellular fluid volume contraction related to the conjugated action of vomiting and decrease of oral intake could stimulate the sympathetic system and the "stress" hormones secretion (cortisol, glucagon, GH). The cortisolaemia was always high. These hormones activate the adipocyte lipase inducing an excessive release of free fatty acids and glycerol into the circulation. The increase of glucagon/insulin ratio in the portal circulation together with an excessive flow of free fatty acids to liver are important factors for ketone bodies production in man. The ACTH levels were variable, but it was very low in four cases. Although, there was no cirrhosis, the alteration of liver functions in these heavy drinkers could alter the normal course of different metabolic pathways and favour ketogenesis in the liver.

**Conclusion:** Hormonal profile of alcoholic ketoacidosis is unremarkable. Nevertheless, it is possible that starvation, diminution of alcoholic intoxication and alcoholic hepatitis induce a deviation of liver metabolism in favour of ketogenesis.

**Key words:** ACTH; alcohol; cirrhosis; glucagonemia; hormonal profile; insulinemia; intoxication; ketoacidosis;

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