



## ALMA VERY HIGH ALTITUDE VISITORS MEDICAL INFORMATION

### ACUTE MOUNTAIN SICKNESS

- Acute Mountain Sickness - AMS is a term applied to a group of symptoms likely to occur in un-acclimatized people who make rapid ascents to above 3,000 m. It also occurs in people who partially acclimatize then make an abrupt ascent to a higher altitude.
- High Altitude Pulmonary Edema - HAPE is abnormal fluid accumulation in the lungs resulting from mal adaptation to altitude. HAPE rarely occurs below 2,500 m.
- High Altitude Cerebral Edema - HACE is swelling of the brain thought to be caused by hypoxia-damage to brain tissue. HACE generally occurs above 3,500 m but has been recorded at 3,100 m.

**A) ABSOLUTE CONTRAINDICATIONS** (permanent conditions not subject to change within a timeframe relevant to company needs; one such condition is sufficient contraindication).

1. Background of cerebral ischemia.
2. Chronic respiratory insufficiency (any one of the following: arterial PO<sub>2</sub> less than 50mmHg, vital capacity less than 50% of predicted value, maximum respiratory minute volume less than 40l, FEV<sub>1</sub> equal to or less than 1lt, cor pulmonale, cyanosis).
3. Severe renal insufficiency (Creatinine clearance less than 40 ml/min)\*.
4. Unstable coronary artery disease.
5. Malign arterial hypertension.
6. Pulmonary arterial hypertension (any etiology).
7. Hemoglobinemia greater than 18.7 gr/dl in men, or greater than 18 gr/dl in women.
8. Severe anemia (Hb less than 8 gr/100ml).
9. Thromboembolisms or blood clots.
10. Background of pulmonary and/or cerebral edema resistant to prophylaxis by acetazolamide, niphedipine and/or corticoids.
11. Epilepsy with seizure in the last year.
12. Morbid obesity (BMI  $\geq$  40)\*\*.
13. Serious uncompensated arrhythmias (e.g., high-frequency, severe ventricular arrhythmias in general, symptomatic WPW, supraventricular arrhythmias with compromised hemodynamics).
14. Pregnancy.
15. Recent (less than 6 months) acute myocardial infarction.
16. Decompensated cardiac insufficiency, or grade III or IV compensated.

**B) RELATIVE CONTRAINDICATIONS** (modifiable in the short term).

1. Well-controlled epilepsy, no seizure in last year.
2. Compensated psychiatric disorders.
3. Presence of cardiovascular risk factors.
4. Insulin-dependent diabetes mellitus (evaluate isolation of workplace).
5. Decompensated type-II diabetes mellitus.



6. Severe hypertriglyceridemia (greater than 800 mg%).
7. Decompensated systemic arterial hypertension.
8. Any uninvestigated cardiac pathology.
9. Other anemias (with hemoglobinemia greater than 8gr/dl).

## OSF CLINIC EXAM PROTOCOL

- Individuals must be checked at the OSF clinic before ascension above 3000 m, by the ALMA Paramedic.
- The frequency of the check-up at the clinic is based on the following:
  - Every affected person going above 3000 m for the first time.
  - Every person that visits the site above 3000m infrequently.
  - Any individual that feels unwell or has a desire to be checked.
- Individuals presenting the following characteristics may not ascend:
  - Systolic blood pressure level greater than 160 without medical certificate or diastolic pressure greater than 100mm Hg. “Prophylactic” anti-hypertension treatment will not be administered by Alma policlinic.
  - Heart rate greater than 95 beats per minute or lower than 45 beats per minute.
  - A blood oxygen saturation level below 70%, or below 80% when showing symptoms of headaches, dyspnea, tachycardia, blood pressure changes.
  - Anyone with a blood pressure level less than that described above, but showing symptomatic indications.
  - Any person in the camp or during the check-up who shows signs of altitude sickness (fatigue, dyspnea, headaches, sleep disruption, tachycardia, palpitations).
  - Patients with a history of AMI (acute myocardial infarction), without the authorization of an attending heart specialist. The authorization should expressly state that it is for an altitude level above 4000 meters.
  - Patients with a history of any form of cardiac insufficiency.
  - Diabetic patients should be assessed via a hemogluco-test before ascending. Decompensated diabetic patients cannot ascend (a hemogluto test above 200 mg/dl).
- If not previously submitted, a copy of the annual medical exam results will be collected at this initial screening.
- The clinic is only designed to stabilize injuries not provide surgery.

ALMA Safety Office

According to ACHS norm and approved by High Altitude Medical experts.