

JPAFMAT, 2005; 5. ISSN 0972-5687

**JOURNAL OF THE PUNJAB ACADEMY OF FORENSIC
MEDICINE & TOXICOLOGY**

Volume 5, 2005

VICTIMOLOGY OF HIGH ALTITUDE PILGRIMAGE

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Abstract

The high altitude religious excursions are very common in India. There are many such holy sites scattered in the Himalayas like Amarnath, Vaishnodevi, Kedarnath, Badrinath, Kailash Mansarovar, Hemkunth Sahib, etc. Many experience the ill effects of altitude. To avoid fatalities government has made it mandatory to undertake a medical checkup before allowing any such pilgrimage. Due to over enthusiasm, many people try to conceal their illnesses and they face serious emergencies during this pilgrimage, posing a serious problem to the organizers and the authorities. The situation is further aggravated by difficult terrain, lack of infrastructure and acclimatization. A broad discussion is done here to prevent such emergencies and fatalities arising due to pulmonary edema, hypothermia, diabetic ketoacidosis and myocardial infarction.

Key Words: Altitude, pilgrimage, sickness

Introduction

At higher altitudes, the pressure of the air around us decreases so there is less oxygen in surrounding air. People can live comfortably at moderately high altitudes, but the body must make some adjustments, and this takes time. If we ascend to altitudes above 8,000 feet, we will be in danger of developing uncomfortable or dangerous symptoms from the change in altitude. It is more likely if we climb quickly, if we exercise vigorously during first few days of altitude exposure, and if we have been living at low elevation prior to climb. Obesity appears to

increase the risk of altitude sickness.

Symptoms of altitude sickness that are not life threatening are called acute mountain sickness. Mountain climbers on any high mountain and skiers in high-altitude locations are at risk of developing acute mountain sickness. Symptoms from acute mountain sickness improve if you descend to lower altitude quickly. For very mild symptoms, a delay before further climbing may be enough to allow symptoms to go away.

Symptoms that develop at high altitude should be taken very seriously, since some altitude problems can develop into fatal illnesses. One dangerous reaction to high altitude is a condition called high-altitude cerebral edema (HACE), in which the brain accumulates extra fluid, swells and stops working properly. A related illness, high-altitude pulmonary edema (HAPE), can occur with or without warning symptoms that signal altitude sickness. HAPE causes fluid to enter the lungs. A type of altitude sickness called high-altitude retinal hemorrhage (HARH) can cause eye damage. Coma and death are the most serious consequences of altitude sickness.

Victimology of Sri Amarnath Yatra

Sri Amarnath cave shrine is situated in the state of Jammu & Kashmir at an altitude of about 13500 ft. Yatra to the shrine is held annually with about 500,000 pilgrims visiting each year. It is just one high altitude sacred place to which people trek.

Due to the difficult terrain and lack of infrastructure, it has been made mandatory for all pilgrims to undergo medical examination prior to the Yatra. Pilgrims are examined by medical officers of the J&K health services at Jammu. Pilgrims above 40 years of age have to undergo lab investigations before Yatra like Hb, TLC, DLC, urine complete, RFT, ECG, X-Ray chest, etc. In spite of much surveillance, people hide their diseases and get medical certificates.

There are 2 routes to the cave shrine, one a 16 km trek and another one is 32 km trek. All along the route several medical camps are established by the J&K health services, military and paramilitary forces and NGOs. The facilities available at these medical camps usually include oxygen and emergency and common medicines. Except glucometer, no other diagnostic aid is available. Treatment of common diseases only is possible and other patients need to be evacuated by porters or by helicopters to the nearest hospitals. The common medical conditions or diseases encountered include myocardial infarction, pulmonary edema, diabetic ketoacidosis, hypothermia etc. Common surgical conditions comprise ankle and knee ligament injuries, multiple fractures including head injuries.

Myocardial infarction is the most lethal condition encountered during

such excursions and patient survival depends on early evacuation. Without ECG facility the diagnosis depends on careful clinical examination and history.

Pulmonary edema is relatively easy to diagnose and manage. It occurs usually due to lack of knowledge among pilgrims who start trekking without acclimatization.

The type I diabetes mellitus some times present initially with diabetic ketoacidosis. Due to the religious beliefs the pilgrims want to reach the shrine and complete the pilgrimage on an empty stomach, and end up in coma.

Temperatures are sub-zero even during the months of July and August during night. Pilgrims do not carry sufficient clothes and lack the knowledge to wear clothes in layers and land with hypothermia.

As thousands of pilgrims and ponies walk on the narrow mountain tracks, it is very likely that accidental injuries take place. In such situation the most difficult job is retrieving the injured and the dead bodies from deep gorges. Common injuries are fractures, sprains and strains etc.

Case Report

The Author has seen many such cases during his posting in the Yatra, but an interesting case from the 2004 Yatra is worth mentioning here. A male patient aged 42 years old was brought to a Medical Camp at an altitude of 14000 feet, with the history of altered sensorium with mild chest pain. The patient was apparently healthy till he experienced mild chest pain. He was having a history of diabetes mellitus since 4 years controlled with oral hypoglycemic, which he was taking regularly since 4 years but had not taken for last 2 days as he was not having regular meals. Careful medical examination was done, the patient had pale mucous membranes, was well oriented to time place and person but was a little difficult to arouse. His pulse rate was 112 per minute, respiratory rate 26 per minute and blood pressure was 60/unrecordable. The cardiovascular system was normal clinically. Bilateral air entry to chest was present with no crepitation and rhonchi. Without ECG a provisional diagnosis of myocardial infarction of inferior wall was made. Supportive measures like oxygen inhalation and IV fluids were started, thereafter the patient's condition started to improve and after half an hour his BP was 80/40 mm Hg. In the mean time arrangements were made to evacuate the patient by helicopter, but due to bad weather it could not land, so four porters were arranged to carry him to the base camp. Condition of the patient started worsening again, due to infusion of fluids the patient developed pulmonary edema, loop diuretics were started and the patient was carried to the base camp by the porters. Patient reached the base camp and then further to a tertiary

health care institute in Srinagar and survived a massive myocardial infarction.

Symptoms

As the body makes normal adjustments to adapt to a high altitude, a few symptoms that are bothersome include rapid breathing, shortness of breath, occasional short pauses in breathing, and frequent urination. Acute mountain sickness, which is just like having a hangover, can be relatively benign (with a headache, some nausea, and tiredness), but high altitude pulmonary edema and high altitude cerebral edema are undoubtedly life threatening. The initial symptoms of acute mountain sickness are warning signs to be heeded carefully. Alas, many pilgrims climb too high too fast and totally disregard initial symptoms.

Acute mountain sickness usually causes symptoms at least 8 to 36 hours after ascent. Symptoms include headache, nausea, vomiting, dizziness, weakness, fatigue, difficulty sleeping, loss of appetite, etc.

High-altitude cerebral edema is considered by many experts to be an extreme form of acute mountain sickness. Symptoms may not be noticed immediately because the illness can begin during the night. Symptoms may include worsening headache and vomiting, staggering gait, confusion, exhaustion, visual hallucinations, changes in the ability to think, changes in normal behavior, coma.

High-altitude pulmonary edema, which is the lungs' response to an increase in altitude, may occur with or without other symptoms of altitude illness. Symptoms of high-altitude pulmonary edema commonly appear at night and can worsen during exertion. Symptoms of high-altitude pulmonary edema include chest tightness or fullness, extreme fatigue, inability to catch your breath, blue or gray lips and fingernails, coughing, fever, noises when breathing.

High-altitude retinal hemorrhage can occur with or without symptoms. It usually is not noticeable unless the macula is involved. Blurred vision is the main symptom.

Recent studies have shown that acute mountain sickness is rampant in pilgrims and that many pilgrims are dehydrated because they are fasting. Many are so serious about the fasting that they do not even drink water. Women are more meticulous about fasting and sometimes they present with severe dehydration.

Symptoms from acute mountain sickness will go away after two or three days of rest at a lower altitude. Severe syndromes such as HAPE can take weeks to disappear, and will require medical attention and possible hospitalization.

Prevention

Gradual changes in altitude will help the body adapt to the low-oxygen

environment and can reduce the chances of developing altitude sickness. People adapt at different rates, but there are four general guidelines for climbers to follow:

- Do not increase your altitude by more than 1,000 feet per night.
- Each time you increase your altitude by 3,000 feet, spend a second night at this elevation before going farther.
- Limit your physical exertion to reasonable levels during your first few days of ascent to altitude.
- Drink plenty of fluid during your altitude exposure.

If you develop early signs of altitude sickness, immediately stop ascending or descend. If you are planning to go to high altitude, take preventative medication. Mild symptoms of altitude adjustment can be limited by using acetazolamide or the corticosteroid dexamethasone. If you previously have developed HAPE, you may receive the oral drug nifedipine, the inhaled drug salmeterol, or both. Sildenafil is being studied as another possible preventive treatment for HAPE, but its use for this purpose is still experimental.

Treatment

The first rule of treatment for mild symptoms of acute mountain sickness is to stop ascending until your symptoms are completely gone. If you have more severe symptoms or any symptoms of high-altitude cerebral edema, high-altitude pulmonary edema or blurred vision, you need to move to a lower altitude as soon as possible, even if it's the middle of the night. If you remain at your current altitude or continue going higher, the symptoms will get worse and the sickness can be fatal. Mild altitude sickness can be treated with rest and pain relievers; and avoiding alcohol, sleeping pills and narcotic pain medications.

Besides moving to a lower altitude —or if a descent must be delayed — you can treat high-altitude cerebral edema with supplemental oxygen and the drug dexamethasone, which decreases brain swelling. Additional treatment for high-altitude pulmonary edema includes oxygen and nifedipine, as well as the use of a standard hyperbaric chamber.

The outlook for altitude sickness depends on how quickly the person can be moved to a lower altitude, and how serious their symptoms are. Altitude sickness can be fatal, but symptoms can also disappear in just a few days, and in many cases, activities at high altitude can be resumed.

Conclusion

Just like many impatient tourists that come to trek in the foothills of the great Himalayas, pilgrims too are a determined bunch and do not

turn back even in the face of increasing symptoms. Many claim that once you undertake the pilgrimage it does not bode well for your spiritual welfare to give it up halfway.

Pilgrims face other problems besides altitude. There are people, who can barely climb up stairs in their homes, undertaking high altitude pilgrimages on helicopter and horseback. Usually they decide to do this on the spur of the moment as the lord is going to lead them. The problem is that you have to get down from the horse during the descent when the trail gets very steep, and your knees and hips may not be up to this. The pilgrimage then turns out to be a nightmare.

Proper surveillance of pilgrims should be done by rigorous laboratory investigations to screen any occult medical conditions. Health education of pilgrims regarding high altitude complications and measures to prevent them should be advocated. Education about safety measures like proper shoes and clothing and padding around knee joints should also be advocated. Depending on the destination, it may be useful for pilgrim travelers to consider malaria prophylaxis and immunization against diseases such as typhoid, hepatitis and meningitis.

Pilgrimage medicine needs to be incorporated into the broader framework of travel medicine to ensure that pilgrims are aware of problems and diseases. Healthcare professionals can then effectively advise potential pilgrims depending on their destination and needs.

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[Top](#), [Back](#), [Home](#)