Reply

Dear Sir,

I would like to thank the readers for their keen interest, scientific analysis and additions of academic interest.

Apropos the correspondents, the author agrees and has discussed that lowlanders never completely acclimatize to extreme altitude under “Extreme Altitude Physiology” in discussion. The contention may rather stem around the fact that inductees to extreme altitude are certified to be acclimatized based on an acclimatization schedule for high altitude. The author has impressed upon the fact that extreme altitude is an entirely different environment wherein high altitude concepts no longer apply (Ref “Extreme Altitude Physiology” in discussion).

The author would like to propose the concept of “Extreme Altitude Pulmonary Oedema” instead of HAPO through this article. Pulmonary oedema may occur de novo at extreme altitude.¹ The occurrence of pulmonary oedema in resident soldiers without any immediate stressors points the ineffectiveness of acclimatization at extreme altitude (Ref “Extreme Altitude Pulmonary Oedema” in discussion). Native highlanders tend to lose their edge once they migrate to plains, which may be the case with the soldiers in this study.

It is agreed that other conditions mimicking HAPO may occur. HAPO was diagnosed on the basis of dyspnoea at rest, weakness, tachypnoea, tachycardia, cyanosis and crackles [<http://www.high-altitude-medicine.com/AMS-medical.html#HAPE>]. HAPO is the commonest disorder, diagnosis is clinical and patients benefitted after therapy which would not have been the case in other conditions. The normal values of vital parameters such as pulse 60–100/min, respiration 12–20 breaths/min, blood pressure <140/90 mmHg and normal body temperature are relied upon to certify a soldier for induction and is followed periodically. The patients’ vitals were beyond these limits. The 31 cases occurred in a period of 5 months and the diagnosis was confirmed at Siachen Hospital. The measurement of SpO₂ is difficult at extreme altitude and was only used as an adjunct to monitor prognosis

(Ref “Acclimatization” in discussion). HAPO was managed by descent, hyperbaric chamber, rest, dexamethasone and acetazolamide. Nifedipine was considered as reserve in view of possibility of adverse effects in the absence of monitoring infrastructure and was only administered to patients having unusually high blood pressure. HAPO induced hypoxia may lead to neurological obtundation confusing the clinical presentation of concomitant HAPO and AMS.¹

It is agreed that hypertension and orthopnoea are not features of HAPO, although atypical presentation at extreme altitude is likely. Acclimatization should be completed before exposure to a certain altitude, only in cases where it is not feasible, should the acclimatization done at that altitude.¹ The patient inside HAPO bag breathes in an increased concentration of oxygen due to increased pressure, which leads to altered physiology. The simulated descent is increased at pressures of >4 psi. The author acknowledges the stretcher evacuation capabilities utilizing DRDO designed HAPO bags.

REFERENCE

1. Director General Armed Forces Medical Services 2002. Medical Memorandum no 140. Problems of High Altitude 1997;140:31–32.

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Livedoid vasculopathy managed with Hyperbaric oxygen therapy

Dear Editor,

It was indeed a pleasure to read a case report on use of Hyperbaric oxygen therapy (HBO₂T) for livedoid vasculopathy published in MJAFI 2012; 68:389–391. It is high time we recognise the use of HBO₂T in such disorders where the patho-physiology of the disease has a definite element of hypoxia to the tissue, which in this disease is due to intra-luminal coagulation. In such disorders only medications are not able to halt/reverse the progression of the disease, provide relief to patients and decrease the morbidity or mortality. I would like to complement the author for recognising the potential of HBO₂T for such not so well recognised indication and relieving the suffering of the

patients. However, I would like to ask for certain clarification as far as the use of HBO₂T for such disorders is concerned.

- (i) Is it not mandatory to check the partial pressure of oxygen (PO₂) of the area in the immediate vicinity of the ulcer by using transcutaneous oxygen measurements or certain other indirect methods before starting the therapy to be sure that there is going to be definite benefit of the HBO₂T.
- (ii) The average duration of relief in pain in the series conducted by Juan et al was 4.9 HBO sessions whereas in this particular study the same was achieved at the end of 18 sessions for 1st patient and 17 sessions for the 2nd