Letters to the Editor

Role of dexamethasone in prevention of high altitude pulmonary edema

Gaurav SIKRI

Department of Physiology, Armed Forces Medical College, India

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In the review article Bhagi *et al.*¹⁾ reported that acute mountain sickness (AMS) may or may not precede high altitude pulmonary edema (HAPE) and that only advanced cases of HAPE may be associated with high altitude cerebral edema (HACE). Therefore, any prophylaxis for AMS and HACE may not be applicable to HAPE prevention/treatment.

Bhagi *et al.* also stated that dexamethasone attenuates the increase in pulmonary arterial pressure (PAP), hence implying that it can be used for HAPE. This observation is based on the work done by Maggiorini *et al.*²⁾, who reported a fall of pulmonary pressure in a small group of HAPE-susceptible individuals with the use of dexamethasone at 4,559 m. They presumably explained their findings in 2006 by dexamethasone-mediated stimulation of cGMP production in hypoxia, an increase in the activity of nitric oxide synthase, and modulation of the increased sympathetic activity in HAPE-susceptible individuals.

However, the Wilderness Medical Society (WMS) convened an expert panel in 2009 to develop evidence-based guidelines for clinicians for prevention and treatment of acute altitude illness³⁾. The panel classified its recommendations based on quality of supporting evidence and consideration of benefits and risks/burdens for each modality as per the American College of Chest Physicians (ACCP) classification. It recommended dexamethasone for prevention of HAPE only in susceptible individuals, and these recommendations are of class 1C (strong recommendation, low-quality or very low-quality evidence). Further, the mechanism for this effect is not clear, and there is not much clinical experience with respect to use of dexamethasone for high altitude illnesses. Therefore,

its role remains questionable for prevention and treatment of HAPE. However, dexamethasone is recommended for prevention of AMS/HACE in individuals who have a history of allergic reaction to acetazolamide (recommendation grade: 1A).

Gradual ascent and a calcium channel blocker like nifedipine (60 mg SR) are the recommended preventive measures for HAPE. Other drugs as reported by Bhagi *et al.* have no or limited roles to play in prevention of HAPE. The long-acting inhaled beta agonist salmeterol can only be used as a supplement to nifedipine. Phosphodiesterase inhibitors like tadalafil (10 mg twice daily) have a preventive role only in HAPE-susceptible individuals. Although not recommended by the WMS, inhaled nitric oxide in combination with oxygen has a role to play in treatment of HAPE⁴⁾, but the medical infrastructure required for a nitric oxide delivery system does not warrant a mention of its role in prevention of HAPE.

References

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Correspondence to: G. Sikri, Department of Physiology, Armed Forces Medical College, Pune 411040, India (e-mail: drgaurav35@gmail.com)