To the Editor:

The recent review article, "Prevention and Management of Cardiovascular Events during Travel" may mislead some readers about the risks of high altitude illness. In addition, the assertion that stroke volume remains unchanged at high altitude is contrary to the finding in the literature that decreased plasma volume results in decreased stroke volume. Although the theoretical risk of cardiac ischemia may be increased, this does not actually seem to be the case.

High Altitude Pulmonary Edema (HAPE) is a form of altitude illness, not of acute mountain sickness (AMS) with which it may coexist. It is a noncardiogenic form of pulmonary edema although it is associated with cardiovascular changes, notably increased pulmonary artery pressure and increased pulmonary vascular permeability.

Contrary to what was stated in the review, HAPE is extremely rare in otherwise healthy individuals who ascend to more than 8000 feet in less than 1 day, unless they ascend significantly higher. The only reference given by the authors Leon, Lateef, and Fuentes for the epidemiologic information, mentions that there were 47 cases of HAPE at Vail, Colorado (8200 ft, 2500 m), from 1975 to 1982. Surely there were hundreds of thousands of visitors of all ages in Vail during this 8-year period. An incidence of 6.4% for those under 21, quoted by Leon, Lateef and Fuentes, is orders of magnitude too high and is not found in Tso’s article. The actual incidence is probably about 0.01%. The highest incidence among civilians, as recorded in the literature, is 2–3% among Denali (Mt. McKinley) climbers. The risk of all forms of altitude illness increases with increasing altitude and increasing rapidity of ascent. Going to Vail in 1 day from sea level is actually a very low risk ascent.

Treatment of HAPE is too complex to be summarized in one sentence. Although descent is mandatory in many circumstances, treatment of mild HAPE at moderate altitudes need not involve descent. Prophylaxis is also controversial. Nifedipine is the best documented prophylaxis for HAPE susceptibles. There are several sources which give detailed recommendations for the prevention and treatment of all forms of altitude illness.

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References

To the Editor:

We appreciate the comments of Zafren regarding our article, "Prevention and Management of Cardiovascular Events during Travel" (J Travel Med 1996;3:227–230). It is well described in the literature that high altitude pulmonary edema (HAPE) is one of the manifestations of high altitude disease of which the simplest form is acute mountain sickness (AMS), generally limited to headache, nausea and insomnia during the first few days at an altitude of more than 8000 feet. In susceptible individuals, AMS may progress to HAPE or high altitude cerebral edema, suggesting a common pathophysiologic mechanism for these three conditions. However, the exact mechanism and the determinants of a certain manifestation in a particular individual are not quite clear.

It is also well accepted that the incidence of HAPE is higher in younger individuals. The incidence of the
literature. It is also important to mention that many factors can explain the variability in the incidence of HAPE found in the literature. Also, inclusion of milder forms of HAPE can contribute to the different incidences of the disease reported in the literature. It is also important to mention that many more individuals can develop subclinical pulmonary edema at high altitude, which occurs at an incidence of about six to ten times that of clinical pulmonary edema.

More significantly, there are no good prognostic indicators in the literature about who tends to develop HAPE. In the Himalayan region, the belief is that above 12,000 feet the climbers should acclimatize for 24 hours prior to further ascent, and the travelers climbing to that altitude usually are rigorously screened for cardiopulmonary risk factors. As clinicians involved in the care of a population with a high prevalence of cardiopulmonary risk factors, we have great concern recommending to the general traveler a rapid ascent to more than 8000 feet.

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References