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LETTER

Novel drugs in the management of acute mountain sickness and high altitude pulmonary edema

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Dear editor

We read with great interest the review article titled "Wilderness medicine at high altitude: recent developments in the field" by Shah et al.[1] The authors have comprehensively summarized the recent advances in the field of high altitude medicine relevant to sports and travel medicine. However, Shah et al have described potential drugs for management of high-altitude illnesses, such as acute mountain sickness (AMS), high altitude cerebral edema, and high altitude pulmonary edema (HAPE) as one group under the section "Novel drug treatment for AMS". The pathophysiologies of these two sets of diseases (AMS/high altitude cerebral edema as one and HAPE as another set) are different[2] and hence it would have been nice to have had the novel drugs described separately to elucidate the therapeutic approach for the two different classes of diseases. Shah et al have highlighted the possible beneficial use of dietary nitrate supplementation (as a source of nitric oxide [NO]) in AMS, but drugs such as inhaled NO and prostaglandin (Iloprost) for HAPE deserve a mention in this list of potential therapeutic agents.[3,4] Anand et al have suggested significant beneficial effects of inhaled NO in HAPE patients.[3] Iloprost in combination with NO has been found to decrease pulmonary arterial pressures in HAPE-susceptible individuals.[4] Although, the latest guidelines on prevention and treatment of HAPE by the Wilderness Medical Society do not include these drugs, this is probably due to the limited work done on these drugs under field conditions of high altitude. Shah et al have also emphasized on specific phosphodiesterase type 5 inhibitors as potential therapeutic agents for AMS and HAPE. However, an expert panel from the Wilderness Medical Society do not recommend the use of phosphodiesterase type 5 inhibitors for AMS, but the same can be used for prevention (recommendation grade: 1C) and treatment (recommendation grade: 2C) of HAPE.[2]

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Disclosure

The authors report no conflicts of interest in this communication.

References

1. Shah NM, Hussain S, Cooke M, O'Hara JP, Mellor A. Wilderness medicine at high altitude: recent developments in the field. *Open Access J Sports Med*. 2015;6:319–328.

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http://dx.doi.org/10.2147/OAJSM.S99621

2. Luks AM, McIntosh SE, Grissom CK, et al. Wilderness Medical Society practice guidelines for the prevention and treatment of acute altitude illness: 2014 update. *Wilderness Environ Med*. 2014; 25(4 Suppl): S4–S14.
3. Anand IS, Prasad BA, Chugh SS, et al. Effects of inhaled nitric oxide and oxygen in high-altitude pulmonary edema. *Circulation*. 1998;98(22): 2441–2450.
4. Maggiorini M, Melot C, Pierre S, et al. Effects of inhaled nitric oxide and prostaglandin on pulmonary hemodynamics in high altitude pulmonary edema resistant and susceptible climbers. In: Roach R, Wagner P, Hackett P, editors. *Hypoxia into the next millennium*. New York: Kluwer Academic/ Plenum Publishers, 1999;408.

Authors' reply

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Dear editor

We would like to thank Sikri and Bhattacharya taking the time to consider our review.

We believe our narrative is clear that acute mountain sickness and high altitude pulmonary edema are separate pathologies. The aim of this review was to highlight topical issues around high altitude medicine, not a systematic review of all of the data; thus we elected to group discussion on all novel treatments into a single section on medications.

We accept the theoretical benefits of inhaled nitric oxide (NO) or prostaglandins, but we have tried to focus the review on concepts directly relevant to the journal's readership. The method of delivery of inhaled NO, as described in the studies cited by Anand et al[1] and Maggiorini et al[2] is not practical outside a dedicated medical facility. Furthermore, the studies cited are over 15 years old. This review is discussing recent advances in the field and as there have not been any further studies conducted on inhaled NO, this did not fall into the remit of our review.

We included discussion about phosphodiesterase type 5 inhibitors as they are topical with recent studies investigating their utility at high altitude, and we believed the journal readership are likely to be asked about these. We have not contradicted published guidance on the use of phosphodiesterase type 5 inhibitors, but have discounted any recent evidence for their use.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Anand I, Prasad B, Chugh S, et al. Effects of inhaled nitric oxide and oxygen in high altitude pulmonary edema. *Circulation*. 1998;98(22):2441–2450.
2. Maggiorini M, Melot C, Pierre S, et al. Effects of inhaled nitric oxide and prostaglandin on pulmonary hemodynamics in high altitude pulmonary edema resistant and susceptible climbers. In: Roach R, Wagner P, Hackett P, editors. *Hypoxia into the next millennium*. New York: Kluwer Academic/Plenum Publishers, 1999;408.