2. Sky News. Bahrain docs face jail despite torture claims. 22 November 2011. http://news.sky.com/home/world-news/article/16115007 (accessed 17 January 2012).
3. Baldwin-Ragaven L, de Gruchy J, London L. An Ambulance of the Wrong Colour. Health Professionals, Human Rights and Ethics in South Africa. Cape Town: UCT Press, 1999.
4. Gray B, Ockelford P. Bahrain health workers in danger: call to action. N Z Med J 2011;124:109-110.
5. Devi S. Medical community urged to defend Bahraini doctors. Lancet 2011;378:1287.
6. Jackson G. Stop: the medical and human rights scandal in Bahrain. Int J Clin Pract 2011;65:823.
7. Friedrich MJ. Human rights report details violence against health care workers in Bahrain. JAMA 2011;306:475-476.
8. Nathanson V, Chrispin E. Bahraini health workers to be retried before a civilian court. BMJ 2011;343:d6547.
9. South African Medical Association. SAMA insists on a fair trial for Bahrain physicians. Press release 17 October 2012. http://www.samedical.org/newsroom/media-releases/archived-media-releases/17-october-2011.html?searched=Bahrain&advsearch=oneword&highlight=ajaxSearch_highlight+ajaxSearch_highlight1 (accessed 12 January 2012).
10. British Medical Association. The Medical Profession and Human Rights. Handbook for a Changing Agenda. London: Zed Press, 2001.
11. Rubenstein LS, London L, Baldwin-Ragaven L, and the Dual Loyalty Working Group. Dual Loyalty and Human Rights in Health Professional Practice. Proposed Guidelines and Institutional Mechanisms. A project of the International Dual Loyalty Working Group. Physicians for Human Rights and University of Cape Town, Boston, 2002. https://s3.amazonaws.com/PHR_Reports/dualloyalties-2002-report.pdf

## Side-effect of acetazolamide in prevention of acute mountain sickness

**To the Editor:** The scientific letter by Firth *et al.*[1] about the side-effect of acetazolamide on a hiker on Mt Kilimanjaro makes a rather hasty conclusion about the recommendation of acetazolamide to prevent acute mountain sickness (AMS), especially in a rapid ascent climb such as Kilimanjaro. It is difficult to disagree about the pathophysiology of acetazolamide causing corneal oedema, but we must note that it is a drug used for glaucoma treatment,[2] and the dosage regimen is usually higher than that prescribed for the prevention of AMS. Interestingly, the authors did not mention the dose and duration of acetazolamide in the article. The cause-effect relationship is difficult to establish from this case report without knowing the dosage regimen and control. Based on the rare side-effect (if indeed it is) in this report, it would not be justifiable to advise against using acetazolamide as a prophylactic of AMS; this could rather invite other serious acute altitude illnesses that would be far more probable were it not used. Major trials with large numbers of participants have reported a fairly safe outcome of acetazolamide.[3] Hence, we should continue using acetazolamide with caution for preventing AMS where there is rapid ascent profile.

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1. Firth PG, Gray C, Novis CA. High-altitude corneal oedema associated with acetazolamide. S Afr Med J 2011;101: 462.
2. Lam PM. Glaucoma pharmacotherapy: implications for flying fitness. Aviat Space Environ Med 2005;76(8):786-793.
3. Gertsch JH, Basnyat B, Johnson EW, Onopa J, Holck PS. Randomised, double blind, placebo controlled comparison of ginkgo biloba and acetazolamide for prevention of acute mountain sickness among Himalayan trekkers: the prevention of high altitude sickness trial (PHAIT) BMJ 2002;328(7443):797.

**Firth, Gray and Novis reply:** We thank Dr Pun for his comments. The climber did not remember the dose she took, but thinks it was 250 mg daily by mouth, starting on the ascent. While painful drug-induced myopia with low doses of sulphonamides is a rare but well-described complication, this appears to involve different mechanisms to impairment of corneal endothelial function.[1] Although we pointed out that a causal pathophysiology was not demonstrated,[2] we therefore speculate that the interaction of drug effect with rapid ascent played a role.

Irrespective of the pathophysiology, it is prudent to discontinue a drug if adverse side-effects occur after dosing. Similarly, if symptoms occur following rapid ascent, it is sensible to remove the possible cause by rapid descent. The onset of visual disturbances should therefore prompt discontinuation of the possibly offending drug and to consider descending.

Although the effectiveness of acetazolamide in preventing AMS during the very rapid ascent profiles typical on Kilimanjaro is debatable,[3] we do not suggest that the prophylactic use of acetazolamide during gradual ascents be abandoned on the basis of this report; rather, the possible causes of a problem should be identified and removed if symptoms occur.

1. Krieg PH, Schipper I. Drug-induced ciliary body oedema: a new theory. Eye (Lond) 1996:10(1);121-126.
2. Firth PG, Gray C, Novis CA. High-altitude corneal oedema associated with acetazolamide. S Afr Med J 2011;101(7):462.
3. Jackson SJ, Varley J, Sellers C, et al. Incidence and prevention of mountain sickness among trekkers on Mount Kilimanjaro. High Alt Med Biol 2010;11(3):217-222.