Letter from Kathmandu

MOUNTAIN SICKNESS

With articles about altitude sickness appearing in high-impact, prestigious journals, one would think that the medical community in Kathmandu would be overjoyed that mountain medicine has finally come to the fore. Mountain medicine has been perceived to be some exotic wilderness ailment, not quite suitable reading for the suave Boston Brahmin types.

Alas, in my hometown no one has proposed a toast to this historic event of the coming of age of high altitude medicine (a la bartabanda). However, it is probably more appropriate to just say Om Jai Shiva than propose a toast, in keeping with the Vedic traditions of the mountains.

So, what new and intriguing aspects have these recent articles added to the literature on high altitude medicine? For a start, perhaps, good old Starling (of the Starling forces in the causes of oedema) would have been startled to find out that this high-permeability (and importantly) non-inflammatory pulmonary oedema cannot be explained by Starling's hydrostatic forces alone.

The leaky pulmonary capillaries now share the limelight with Na-K-ATPase of the epithelial alveolar cells in the causation of high altitude pulmonary oedema (HAPE). The latter mechanism was unheard of until recently in the pathophysiology of HAPE. An efficient Na-K-ATPase system in the alveoli helps to keep the alveoli dry even in the face of potential oedema. In fact, as with everything else in medicine these days, this comes complete with a genetic meaning. Persons with an increase in the expression of genes that encode the Na-K-ATPase channel are better at keeping the alveoli dry. The efficiency of the Na-K-ATPase channel was assessed by studying the nasal transepithelial potential difference, a marker for the transepithelial transport of sodium and water in the alveoli. In addition, this may have a bearing on prevention or even treatment, as beta-agonists such as salmeterol may enhance transepithelial sodium transport, thus helping to keep the alveoli dry.

It was Inder Singh et al. who first drew the world's attention to high altitude medicine in South Asia with the publication of a landmark study on Indian soldiers at high altitude. We live in the foothills of the world's highest mountain range and, as I tell my students at the Institute of Medicine at Tribhuvan University, the task of rekindling the world's interest in HAPE has squarely fallen on our shoulders. I tell them to forget about heart disease and diabetes for a while, and concentrate on altitude sickness. The class consists of eager, smart students who will do Nepal proud; and perhaps they can sense that a career for them in mountain medicine is here for the taking.

Many people think mountain sickness is just a foreign disease, as many tourists who visit Nepal and trek in the mountains suffer from altitude sickness; but this is a fallacy as it is very much a local disease and there are several examples to prove this point.

Thousands of porters and sirdars accompany western trekkers to high altitudes and studies have shown that they are just as vulnerable as the trekkers. The trekkers themselves think that being Nepali makes them bahadur (tough guy) and they are immune to altitude sickness. Nothing could be further from the truth. Although there are some data which suggest that people of Tibetan ancestry may be protected from altitude sickness, the vast majority of other ethnic groups are at risk from this ailment. Unfortunately, if a mishap in the mountains were to befall a Nepali, hardly anyone would take notice; however, when a foreigner is sick or dies the concerned Embassy usually makes every effort to help their citizen. Sadly, the Nepalese government has no system in place for such a contingency. Perhaps for this reason, prevention of mountain sickness is of paramount importance in the porter and guide population.

Many people do not make the distinction between trekking and climbing. People who are climbers often feel that suffering from altitude sickness is mandatory to get to the top. The competition and burning desire to scale Mount Everest, for example, is so strong that advice about mountain sickness seldom registers, especially in young reckless climbers out to make a name or to strike it rich with a commercial company. Trekkers, on the other hand, are usually less ambitious and are more receptive to learning about the prevention of acute mountain sickness (AMS) which may be HAPE or high altitude cerebral oedema (HACE).

There is another very important, until now unidentified group—the pilgrims who sojourn to the Himalayas to pay homage to the greatest Vedic deity, Lord Shiva or Nilakantha (the one with the blue neck) whose abode is the high Himalayas. To save the world from a deadly poison (thanks to the infighting of the demons and the gods in a manner reminiscent of present-day Nepalese politicians), Shiva drank this potion in one gulp which caused his neck to turn blue. He plunged into a few high altitude lakes (Gosainkunda, Damodarkunda, etc. in the Himalayas) to cool the tremendous heat generated by the devastating poison (so goes the folklore). Ever since, his devotees have visited high altitude lakes and taken a dip in them. This is supposed to be a journey of anand (bliss). Unfortunately, so consumed are some of the devotees in paying homage to Lord Shiva that they are completely oblivious to the lurking dangers of altitude sickness, nor have they been warned about the potential health hazards of high altitude trekking. The stage is thus set for a drama that Indra (the Vedic counterpart of Zeus) would be proud of! Pilgrims who have never ridden horses ride on steep narrow trails, devotees suffer from hypothermia and hallucinations brought on by the relentless cold and HACE and, finally, dehydration takes its toll on the fasting women. The tragedy is that in most cases AMS and its complications are totally preventable in everyone—trekkers, porters and pilgrims.

Ascending gradually (not too high too fast), recognizing headache and nausea as important warning symptoms of altitude sickness, avoiding dehydration, keeping warm and using acetazolamide or dexamethasone when necessary can be very effective preventive measures. Often these precautions can make the difference between life and death.

A controversial article in the BMJ advocated that there was no effective prevention of AMS except 750 mg of acetazolamide. This was a flawed meta-analytic article. For decades, we in the Himalayas have been using only 250 mg and effectively preventing this illness in a population which ascends rapidly, e.g. pilgrims going to Lhasa. However, there is no double-blind, placebo-controlled study of the effect of the lower dose. This study should be carried out in the Himalayas, and if the results turn out as hypothesized, then we would have prevented the tremendous paraesthesiae (jhum jhum) caused by the higher dose of acetazolamide.
NONE SO BLIND AS THOSE WHO WILL NOT SEE

The southern states, particularly Tamil Nadu and Karnataka, lead the country in renal replacement therapy. One would expect a Chennai nephrologist to be proud of this fact, but it is actually a matter of shame. The Transplantation of Human Organs Act, 1994, expressly forbids the sale of human organs, but permits transplantation from unrelated donors by reason of affection or attachment towards the recipient or for any of the other special reasons.1 An Authorization Committee is appointed by the government to oversee transplants, and to ascertain that all transplants are carried out within the framework of the Act. In Karnataka, 1012 patients were officially cleared to receive kidneys from unrelated live donors between January 1996 and March 2002. It should be obvious to any sensible person that it is highly improbable that so many people should be imbued with this selfless spirit strong enough to inspire them to undergo major surgery and sacrifice a vital organ for no material benefit. Frontline, a Chennai-based news magazine, published an expose entitled ‘Karnataka’s unabating kidney trade’, from which I quote: ‘The data in hand strongly suggest that far from being a demonstration of altruism, virtually every one of these cases of donation of a kidney on grounds of emotional “affection or attachment” or “compassion” is an exploitative and illegal financial transaction between a poor donor and a relatively well-to-do patient. . . . That the kidney trade is exploitative of the poor and the needy is highlighted by the large number of cases where donors are shown, in the second set of official records, to be employees or unrelated dependants of the recipients. Evidently, the Committee had programmed itself to believe the fiction that the donations even in these 65 cases [scrutinized by Frontline], were not exploitative and did not involve any commercial consideration.2 One unfortunate donor who did not receive the amount of money he was promised pestered the agent to pay him. He was stabbed to death.

The Authorization Committee in Chennai consists of the Director of Medical Services, the Director of Medical Education, and a senior professor of the Madras Medical College. Its collective zeal to uphold the law is no greater than its Karnataka counterpart. There has been no reduction in the number of unrelated donor renal transplants done in Chennai since the Act was introduced. On 13 August 2002, the city newspapers carried the report of arrest of a person who arranged unrelated donors for a hospital in the city. He is said to have collected Rs 100 000 from each patient for a kidney. He then arranged for a donor, who was usually a woman from slums near the hospital, and paid her Rs 25 000. One should laud this entrepreneur, who contrives to do so well in his trade despite the general recession in the Indian industry.

The New Indian Express of 17 August 2002 carried quotations from a few doctors which clearly showed that the medical profession is ignorant of the law, or frankly ignores it. Dr T. N. Ravishankar, secretary of the Indian Medical Association (IMA) (Nursing Home Board) says, ‘There are times when our patients have been kept waiting for more than three months with a diseased organ, just to get a nod from the state Authorization Committee. We have lost many patients and no doctor will be willing to do this.’ Dr M. Balasubramaniam, former IMA president, is quoted as saying, ‘We are pressed for time. Why should ailing patients be kept on wait. We are not against the committee, but we are against the delay.’ And in self defence, Dr C. Ravindranath, Director of Medical Education, says, ‘Granting permission is not that easy, especially when we know that they are not related. Most of the time, the relatives of the patients and the doctors concerned do not inform the donors about the complications involved in the organ donation. We make it a point to counsel the donors and this takes time.’

Dr Ravindranath seems to have no inkling of the Transplantation of Human Organs Act, 1994, which he and his committee are