171,108 SNPs in the comparison between Tibetan mountaineers and Dingri Tibetans were annotated in 37 genes ($p < 0.001$); 124 out of 135,542 SNPs were annotated in 57 genes within the athletic group and Weizang people.

In addition to reported genes related to hypoxia adaptation such as EPAS1, ANGPT1, etc., several candidate genes involved in cellular energy metabolism and myogenesis appear to contribute to mountaineers' physical performance including a member of sodium/calcium exchanger. The frequency of its major alleles increased with the altitude elevation. Furthermore, calcium signaling shows to be the most significant pathway in Tibetan athletes when pathway enrichment analysis was performed in all candidate genes. Fst analysis also indicated a significant overrepresentation of genes involved in calcium related pathway. Our results suggest a potential mechanism in Tibetan athletes to cope with double stress of hypoxia and high-intensity exercise.

Basangzhuoma
Xiujuan Shao
Changqing Zeng
Beijing, China

Acute Mountain Sickness—Can it be Predicted?

Introduction.—Acute Mountain Sickness (AMS) is a syndrome complex seen in people reaching altitudes unaccustomed to earlier. AMS is frequently associated when the gain in altitude is rapid with an improper acclimatization schedule. AMS, has a synonym in High Altitude Sickness, as it was thought to occur only at high altitude. AMS and its related problems are of great concern to us because an increasing quantum of people is flocking to the mighty Himalayan ranges;

thus getting exposed to unaccustomed altitudes. The problems of AMS can be a considerable drain on the time, resources and morale of the whole team. It is therefore necessary to evaluate the possibility of a methodology to predict the subset of people prone to develop AMS.

Aim.—To evaluate the role of capillary fragility and serum electrolytes as a predictor in AMS.

Materials and Methods.—The study was done on three groups. Group 1 consisted of a team of 12, trekking and climbing in the Ladakh Himalaya. Group 2 had 15 students and 5 instructors attending the mountaineering course at the Nehru Institute of Mountaineering. Group 3 had 6 climbers and 7 highlanders (Porters) on an expedition to peak Kamet. The capillary fragility was checked as described by Stirrups et al which consists of placing a plastic cup of 1 cm diameter over the lower lip mucosa and applying a negative pressure of 200mm of mercury for a period of 1 minute. This was done with an airtight syringe, calibrated with provision thus produced were counted and recorded.

Results.—The initial physical evaluation of all 3 groups was normal, based on which all were cleared for the expeditions. Analysis of the data shows that all those who were positive for the test of capillary fragility developed AMS at some altitude during the ascent.

Conclusions.—With respect to the development of AMS, the test of capillary fragility that is deranged or down regulated. Sensitive predictive tool. Thus the bottom line in the pathogenesis of AMS seems to be capillary fragility that is deranged or down regulated.

K. Govind Babu
R. Srinivasa
T. Venkatesh
C. Vidyasagar
Sanjaynagar, Bangalore